AMERICAN CINEMATOGRAPHER

The Motion Picture CAMERA Magazine

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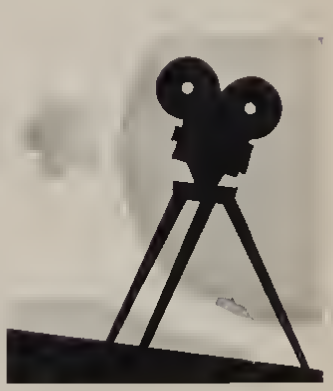

What to Read

Next Month

● Dr Herber Meyer will give us another comprehensive and instructive article on the laboratory side of the motion picture business We will also have a fine contribution from the head of one of the camera departments of a Hollywood studio on Standardizing Camera Equipment

● Naturally there will be a pen picture of one on the leading Directors of Cinematography and other contributions by members of the American Society of Cinematographers

The Staff

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· ANNUAL TOPIC INDEX ·

Volume XVI, 1935

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Technical

RECOVERY from the depression is clearly indicated by the number of technical advances chronicled during 1935. In addition to a multitude of detail improvements, the year brought forth a number of advances of a basic nature, and although there was no change as radical as the introduction of Panchromatic film and Mazda lighting or the advent of sound, none the less certain of the year's innovations foreshadow sweeping changes which may logically be expected in the relatively near future. 1935 has indeed been a productive year.

Methods

There has been a marked tendency toward longer production-schedules and more generous budgets, permitting if not actually demanding the exercise of greater care in the technical departments.

There was also a definite increase in the number of location-made "Class A" productions, and in the utilization of bona-fide exterior scenes rather than stage-built exteriors or process shots.

Although, for various reasons, the Technicolor 'boom' which, early in the year many expected to follow the release of 'Becky Sharp," the first three-color Technicolor feature, did not materialize, the later months have seen a revival of interest in all-color films, with several in production and at least a score projected for the coming season. Abroad—especially in England—enthusiasm for color is reported at a high point.

In several studios definite progress was made toward standardization of photographic equipment.

Influence of Foreign Elements

The influence of foreign elements was not as marked as it has at times been in the past. Production in England made notable advances economically, artistically and technically, drawing heavily upon Hollywood for expert technicians of all kinds, especially Cinematographers, special-process technicians, and make-up artists.

The tremendous interest in natural-color cinematography shown by the British film industry is directly responsible for the creation of a British branch of the Technicolor Corporation, and indirectly is undoubtedly an accelerating factor in the revival of Hollywood's interest in color.

Raw Materials

Eastman introduced 'Super X' Panchromatic negative film. This product, which was originally intended for use in photographing "transparency" or projected-background process composites, has come into general use for production camerawork. It is rated as 40 per cent faster than the previous Super Sensitive emulsion, with slightly different color-sensitivity characteristics, and requires an average of 2 minutes longer development.

Agfa introduced a 35mm reversal-type Panchromatic film, of excellent characteristics. This product was intended primarily for the making of background-projection 'key plates." However, due to the general need for post-development control of the density and contrast of these keys, the film has not been commercially used to a great extent. It is, however, spreading into the miniature-camera field with considerable success.

Agfa also introduced "Finopan" negative film, a medium-speed, fine-grain Panchromatic emulsion which is meeting considerable success as a film for transparency-background keys.

The Agfa firm likewise introduced an Infra-red sensitive film which has been excellently received, and 'Portrait Superpan' cut film for still photography.

The introduction of "Kodachrome' and "Dufaycolor' color-films (the former available only in 16mm., the latter in 16mm., 35mm., and roll, pack and cut-film) was of considerable importance.

In the substandard cinefilm field, aside from the advent of Kodachrome, Bell & Howell's introduction of pre-split 8mm. "Filmapan" was the greatest innovation.

Pellex introduced what is claimed to be the fastest Panchromatic emulsion yet produced in "Super-Pellex," which is given a Weston-meter speed rating of 50 for daylight and 40 for tungsten light. In common with all Pellex-films, it is of the reversal type (16mm.) and coated with the "Triplex" anti-halation backing, a part of which is left after processing to reduce projection-flare.

Cameras

The Twentieth Century Silent Camera, developed by Grover Laube and others at the 20th Century-Fox Studio, was probably the outstanding camera development of the year.

In the substandard field, Bell & Howell's "Straight 8 Filmo," using pre-split 8mm. film, set up a new 8mm. standard.

The Fearless Camera Co., of Hollywood, produced an interesting custom-built professional type 16mm. sound on film camera.

Abroad the Zeiss "Movikon" exhibits many excellent features especially a built-in range-finder coupled to the lens after the fashion of a miniature-camera, and the Siemens and others introduced inbuilt photocell exposure-meters interconnected with the diophragm controls.

Accessories

The most startling innovation in this category was the development of the Eastman 'Polo-Screen,' a device for controlling glare, reflections, etc., by polarizing light.

Improvements in blimping were noted at Warner Bros. and Metro-Goldwyn-Mayer studios, and various forms of synchronizing lens and finder for follow-focus shots came into general use.

Metro-Goldwyn-Mayer developed an intermediate-sized camera-crane adapted to location work and high-speed transport as well as to studio use.

The Fox-Fearless "Velocilator" became standard equipment in many studios here and abroad, replacing tripods and earlier types of small cranes.

Lenses

Bell & Howell introduced a new super-speed lens for professional use, the new Taylor, Taylor & Hobson "cooke" f 1.3 'Speed Panchro."

Lighting

With faster films in use, there was a marked tendency toward the use of fewer lighting-units, but more efficient ones and simpler lightings. The Arc made notable gains

Progress in 1935

in monochrome cinematography, due to the introduction of more modern equipments

Mole-Richardson introduced the "Junior Solarspot," a Fresnel-lensed 2,000-watt unit producing a remarkably even beam of high power, which is rapidly supplanting the 18" parabolic-mirror reflector sunspot. A similar 5000-watt unit known as the "Senior Solarspot," is being introduced as this goes to press.

The same firm developed a Fresnel-lensed Arc spotlight known as the "Hi-Arc," which is rapidly superseding both the 80 Ampere rotary-carbon condenser spotlight and the 24" (reflecting) Sun Arc. Although developed primarily for color cinematography, this lamp has been extensively used in black-and-white productions.

The "Vitachrome," an interesting, double-reflecting portrait lamp (1,000-2,000-watts) was introduced by A. C. Jenking.

Two high-power professional Photoflood units were introduced for industrial and location use. They are the "Artreeves," made by the Hollywood Motion Picture Equipment Co., and the Mole-Richardson "Cinelite."

In the amateur field, Lights, Inc., and Bell & Howell made available a range of oplanatic (faceted) metal reflectors for use with Photoflood globes.

Process Cinematography

No basic developments were noted, though many detail improvements were made by individuals and studios. Several films, released or in production, include unusual special-effects problems. Among them may be mentioned "The Last Days of Pompeii," "The Invisible Ray," "Peter Ibbetson," "A Midsummer Night's Dream," "Transatlantic Tunnel" (British), and "The Shape of Things to Come" (Also British).

Natural-color Cinematography

Professionally, the major interest in color is centered on Technicolor's three-color process, the only 3-tone method commercially available, but a considerable amount of undercover development work is under way by both studios and color-firms. With both "La Cucaracha" and "Becky Sharp" showing sufficient financial success to warrant the added expense of color photography and laboratory work, several American firms—notably Pioneer, Walter Wanger Productions, and Selznick-International—have scheduled a large group of color features for early production. The number will probably total nearly a score. Abroad, Technicolor is erecting a plant to handle negative development, daily and release printing in England, and Alexander Korda's London Film Productions is reported to be planning on entirely Technicolor programme as soon as facilities are available, with other producers likewise interested in using the process.

With major-studio interest centered in Technicolor, Independent producers and makers of short-subjects are giving various two-color processes a new lease on life. Coincidentally come improvements in some of these systems which, had they occurred before the commercial advent of three-color cinematography, would have been of front-rank importance. Among these are the use of single-coated prints and dichrotic dyes by Cinecolor and the Dunning Tri-Tone process, the introduction of the Harrison Multichrome System and the Gilmore system, both of which produce two color-separation negatives on a single film by use of optical units which divide the picture into two half-size images, rotated 90° and occupying one normal frame, printing is done optically, with the images restored to normal size and position, superimposed and colored subtractively. The results are said to show greatly improved definition and color-values.

Regal Productions are producing a programme of 8 Independent features in Consolidated's "Magnacolor" (Bipack) process, and a number of shorts, Spanish-language features, etc., have been made in Vericolor and other similar processes.

In the substandard field, Eastman's new 'Kodochrome" 16mm process (not to be confused with the earlier, 2-color process of the same name abandoned many years ago), is undoubtedly the outstanding achievement. This is a monopack, three-color subtractive process, involving the use of a multilayer film and intricate laboratory processing, but imposing no special requirements in taking or projection. It is understood that intensive research is under way to transform this reversal process to one which can be used professionally.

Almost simultaneously, Dufaycolor was introduced. This three-color process makes use of a ruled mosaic color-screen, and the material is available for 35mm and 16mm Cinematography and for many types of still photography. It is understood that some professional productions using Dufaycolor sequences have been made in England.

Stereoscopic ("Third Dimensional") Cinematography

Nothing of any commercial importance has been done in this field, though it is known that several studios among which may be mentioned M-G-M and Universal have conducted experiments with various processes behind locked doors. At the Fall Convention of the Society of Motion Picture Engineers, an experimental stereo process involving the use of polarizing spectacles similar to Eastman's Polo-Screens, was demonstrated. M-G-M released a Pete Smith novelty short-subject entitled "Audioscopics" in which a third-dimensional process securing the effect by complementary-colored images and spectacles, was used.

Film Standards

In the United States, five dimensional standards are well established. The professional standard of 35mm film, with the so-called "Academy Aperture" and a standard .084" sound-track, is well known. In the amateur and non-theatrical fields, two 16mm standards apply. The

Continued on Page 523

Problems of Controlling Correct Photographic Reproductions

by
Doctor Herbert Meyer, A.S.C.

SINCE THE INTRODUCTION of sound, it has become essential for any one engaged in the technical end of the motion picture industry to acquaint himself with the nomenclature of photometry. Characteristic curve, straight-line portion, toe, shoulder, gamma and latitude are common expressions exchanged and debated by cameramen and laboratory technicians, and become important practical units or factors in the discussion of photographic possibilities and results.

Still, however, while not underestimating the value of progressive technical education which lies in the popularization of certain fundamentals from the field of photometric science, it should not be overlooked that the conception of these laws and terms by the average person is not based on actual knowledge as to their evaluation, exact meaning and limitations, but is rather purely that of simplified tools or methods which are valuable in a practical way for the aid they offer in obtaining quicker results or greater accuracy and consistency.

As an example, we refer to the common practice of reading densities and plotting a sensitometric curve. This is a simple procedure performed by any one who is familiar with the manipulation of a densitometer and with the printed form of the graph paper. It is doubtful, however, that many would be able to explain the principle of this densitometer and its inherent limitations or to plot a density-log exposure curve of correct proportion on a plain sheet of paper, necessitating knowledge of the relation between density increase with exposure progression.

The above would justify attention to the fact that standardizing and mechanizing aside from its usefulness carries in itself the danger of releasing man from the necessity of creative thinking and substitutes a "taken for granted" attitude which undoubtedly would retard general progress. It is interesting in this instance to recall the enormous part played by the American radio amateur in assisting that industry to its present efficiency. Not satisfied with only turning a knob on a receiving set, the amateur participated in building his own equipment and thus accumulated experience and knowledge that was utilized with great success by the commercial manufacturer.

After years of experience in the manufacturing of raw film and also in consumption in the practical field, the writer is aware that the consumer, represented by the camera and laboratory men, should know these products even better than the manufacturer, who in this case sells his merchandise practically without visual inspection. It is, therefore, equally logical that a large proportion of creative advice towards improvement of the film product should be contributed by the practical man on the basis of both his intimate knowledge of products and his consciousness of the consumers' current problems and future needs.

Fortunately, this has been the case and has resulted in much constructive advice which has been instrumental in assisting the film manufacturer to improve the quality of his products. The writer feels, however, that the effectiveness of the camera and laboratory men in this instance could be greatly increased if both had a deeper and clearer technical conception of the photographic principles underlying their practical experience and daily work.

The following articles are written with these thoughts in mind and might aid one or the other in widening his understanding of photographic terms and laws.

The fundamental law governing faithful photographic reproduction of natural objects is expressed by two equations:

$$1 \quad Cn \times Cp = Co$$

$$2 \quad Co = 1$$

Wherein Cn represents the contrast or gradient of the negative emulsion, Cp that of positive material, and Co the overall contrast in the final print.

It follows from these equations that

$$Cn \times Cp = 1$$

A variation of this law is better known in laboratory practice which quotes:

Gamma Negative x Gamma Positive = Overall Gamma,

or

Gamma Negative x Gamma Positive = 1

This version plays a substantial and well-known part in the field of sound recording and reproduction especially when applying the variable density method and straight line recording. In pictorial photography, however, this simplified equation is practically useless as it does not answer the question of exact reproduction for the reason that gamma refers to the straight line portion exclusively, while a considerable part of the photographic reproduction utilizes the curved-toe portion of the positive film as it is necessary to render clear highlights in the finished print. Hence, it is essential to apply the general equation as given above in which the overall gradient equals unity and which takes into consideration every part of the gradation including the curved portions.

In laboratory practice the terms and utilization of gamma values have been introduced principally as a means of controlling the constancy of development and developing solutions. Experience, however, has taught the laboratory man not to rely on gamma values alone, but also to check and protect uniformity of density level in development by reading individual density tabs in connection with every gamma test, one of which, as a rule, is a low density located in the curved-toe section of the characteristic curve as applied to positive film. These tests, no doubt, serve as a means of not only keeping the gradient of the straight-line portion constant in the developing procedure, but also of preserving the shape of the toe section which in combination represents a fairly accurate method of protecting

Continued on Page 524

ARTHUR EDESON, A.S.C

An Etcher of Character

---is Arthur Edeson

by
Harry Burdick

SOME TWO DECADES BACK, Arthur Edeson was holding enviable rating in the fore-rank of photographic portraitists of the nation. When he graduated to the wider realm of cinematography, he took with him a priceless heritage—the well-nurtured gift of pictorial character delineation.

This sharpened talent has stood him in good stead throughout his many cinematographic adventures. It is the underlying fundamental of his camera conceptions. It directs him to lens characters instead of actors, dramatic action rather than individual posturing before sets. It goes far to explain why Edeson has been entrusted with more million dollar productions than any other practitioner of screen camera craft.

It provides explanation also, for the subtle charm and the epic sweep of artistry that permeates his every screened work. It accounts, too, for his amazing versatility, the flexibility of his camera technique to accommodate dramas of so widely divergent content as "All Quiet on the Western Front," "Frankenstein," "Mutiny on the Bounty," "In Old Arizona," 'Ceiling Zero," to itemize a few works of differing concept.

He has placed on celluloid an astounding variety of stories. Each new assignment, it seems, takes him into unchorted paths of endeavor. But regardless of the scope or nature of the plot to be unfolded, his underlying talent at true and sincere character portrayal prevails.

There is no betraying earmark of sameness nor monotonous stereotyping to his steady stream of successful screenings. His treatments are as varied as the stories themselves, each in close keeping to the particular narrative. Indeed, story wholly governs his procedure.

Blessed with a deep story sense and drama valuation, he goes about his work much as would a novelist or playwright, but with camera rather than pen as his vehicle of expression.

Establishment of exact mood paints in his emotional atmosphere and level. Then he deftly captures character and characters on his negative, recounting his dramatic tale through precise development of character as the story carries on to climax.

He gives painstaking attention to detail, before and during actual shooting. Days are devoted to thorough consideration of the cinematographic mechanics involved. This intense preparation done, he calmly and patiently "makes pictures."

His recent "Mutiny on the Bounty" is instance of his deliberate insistence on technical and dramatic perfection. This historical opus was twenty weeks in the making. It presented cinematographic difficulties in quantity to contribute jitters to the most poised artist. It was the most difficult from physical obstacles of any picture to his record.

Shooting was done in a land-locked bay at Catalina. As no land must show and so destroy the illusion of a ship for at sea, he could direct his camera only in one general direction. Now come the disturbing element. The good ship, "Bounty," had to be in position into the wind so that its sails might be filled. And the wind, day to day, as sea breezes will, changed about in prankish fashion and would never blow in the same direction two days running, or even throughout a full day, for that matter. Hence, Edeson encountered one of the toughest lighting problems on record. He would have blinding blue skies, or gray, foggy skies. The light and color of the sea, of course, changed correspondingly. He had white sails against white and gray skies. He had characters to light and costumes to convey. In addition and just to make his cup of troubles full to the brim, he was using not more than a 40mm lens throughout, that the "Bounty" might seem small as possible.

Because of all the confusing factors, it became one of the most exacting filtering undertakings one can imagine. How well Edeson solved his myriad technical problems and emerged triumphant over variable elements is demonstrated by the accolades of high praise from reviewing critics sitting before his projected photography.

From these puzzles of purely nautical nature, he turns to his current production, "Ceiling Zero," a Warner Brothers epic treating of air mail dramatics. Throughout this document, menace is furnished by fog, thick, soupy fog always

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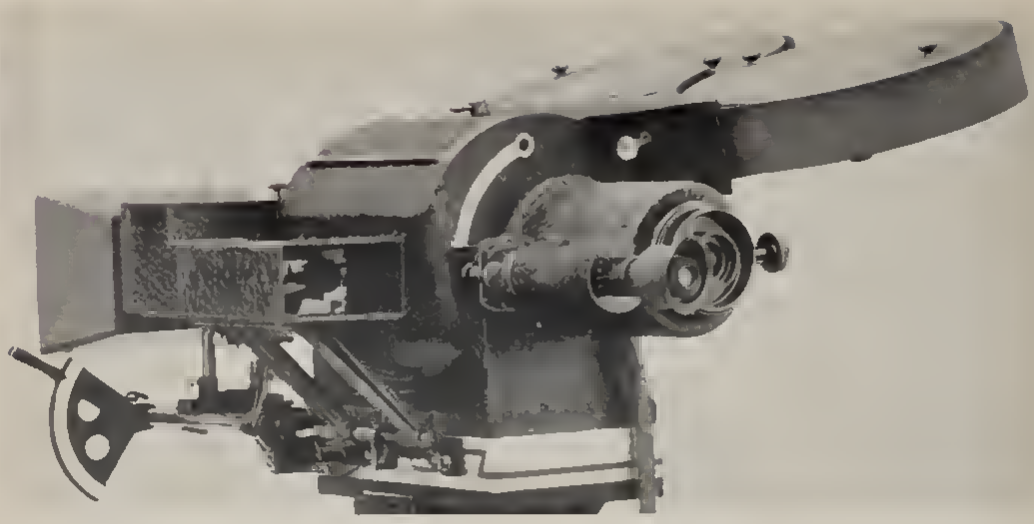


Innovations Mark New 20th Century Silent Camera

by
William Stull, A.S.C.

COMBINING many radical innovations in design with well-considered practicality, a new silent camera has been developed by the cinetechnical staff of the Twentieth Century-Fox Studio. At first sight, the camera appears essentially to follow the accepted school of American studio-camera design, but upon closer inspection it becomes evident that although all of the accepted components are present, they are assembled in a decidedly unconventional manner, and further examination reveals a definite, practical reason for each departure from orthodox practice. The obvious question about any silent camera is answered, in the case of the Twentieth Century Camera, by the statement that it has already been used on an entire production, ["Show Them No Mercy"] unblimped, and at times within two feet of the microphone.

The development of the new camera might be described as something of a community project. Conceived and built under the guidance of Grover Laube, head of the Studio's cinetechnical department, patent-office records list, in addition to Laube, Charles Melvin Miller, Robert C. Stevens and Edward Albert Kaufman, all of the studio's precision cinetechnical shop, as the actual inventors of the camera, but they are unanimous in paying tribute to the cooperation and practical suggestions received from Camera Executive Gadfrey J. Fischer and his staff of Cinematographers. It is a remarkable evidence of the spirit prevailing at the studio that the research and development work of this project was undertaken privately by these individuals, and that save for the actual materials used, the completed camera had no charge against it when it was presented to the company.

The general layout of the Twentieth Century camera adheres essentially to conventional American practice. That is, a four-lens turret is used, a durable metal box houses the camera mechanism itself, and is surmounted by dual, external film-magazines of 1,000 foot capacity, while the driving-motor is mounted at the rear. Access to the mechanism is through a door on the left-hand side, at which side is also mounted a finder interlocked with the focusing mechanism and automatically correcting for focus and parallax.

The camera housing, however, is cylindrical in shape, rather than square. This is due not to any intention to be causelessly novel, but to the fact that this shape is best suited to the rotating focusing shift employed. The cylindrical case is mounted on a yoke-shaped base, and in focusing rotates on the axis of the main shutter-shaft. This rotation brings the focusing microscope into place between the lens and a fixed eyepiece at the rear. Both of the bearing surfaces upon which the housing rotates are completely enclosed, and thus protected from dust and

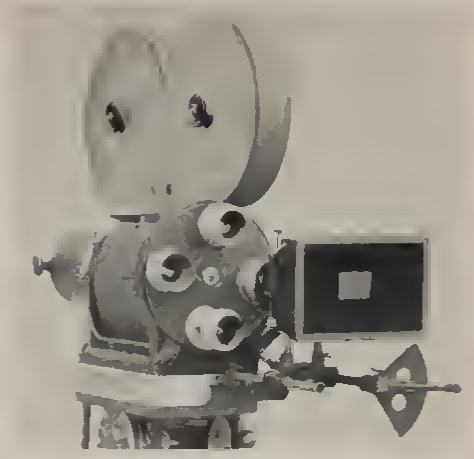
grit which can not only cause wear, but at times obstruct the full movement of an unprotected shift Positive, cushioned stops limit the travel of the shift, and prevent both jarring and misalignment The eyepiece, incidentally is adjustible to suit the eyes of the various members of the camera crew, and is calibrated for easy adjustment A secondary advantage of the rotating focusing shift is the fact that the movement may be reloaded or inspected by the assistant without interference with the focusing operation

A conventional disc type shutter is used, with an aperture of 200° The movement, which employs registering pilot-pins, is characterized by a remarkably even action This movement was designed only after exhaustive analysis of the take-down mechanisms of the principal types now in use Fig 1 shows curves representing the velocities of the take-down pins in the new camera contrasted with a composite curve representing an average of several types now in general use It will be noted that although the take-down of the Twentieth Century camera takes place in a relatively brief period, it is uniform throughout, and does not attain at any point in the cycle an unduly high velocity The peak velocity is approximately 73 inches per second, while in some conventional designs the velocity not only reaches a peak of 98 inches per second, but peaks very sharply The take-down pins have absolutely no vertical movement at the moment of engagement and disengagement, though in some commercially used types the pins enter and leave the perforations while still possessed of considerable vertical velocity—i e , moving in an arc rather than straight into and out of the perforation Due to these characteristics of straight-line engagement and disengagement and uniform acceleration, it has been possible to shape the take-down pins very accurately, giving both the moving pins and the registering pins a very precise fit in the perforations, and assuring the maximum of accuracy and steadiness

Silence is secured by this uniform action, by minimizing gearing and the weight of moving parts, and by giving the film as nearly free a path as possible No soundproofing other than the conventional black velvet lining is used in the camera, the aim of the designers having been to prevent the cause of noise, rather than the effects Magazine noise is minimized by affording the film free passage, eliminating contact between the edges of the film and the walls of the magazine At present, specially rebuilt magazines of conventional type are fitted, but an improved type is being developed A special locking spool is used, fitted with an ingenious, but easily operated lock which holds the spool rigidly to the shaft The take-up drive is by belt from an internal clutch The varying size of the film-roll is compensated for by this clutch, rather than by slippage of the belt For this reason, when the camera is in operation, it is said that the action of the take-up drive appears deceptively slow

Provision has been made to use a wide variety of standard driving motors The present equipment is powered with a standard 1440 R P M synchronous motor, the stator field of which may be shifted to synchronize with the projectors used in background-projection process cinematography

The monitoring finder is of the conventional type,



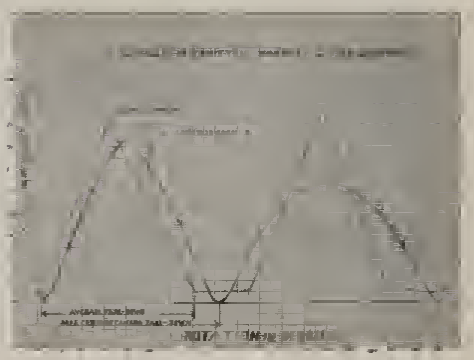


Fig 1

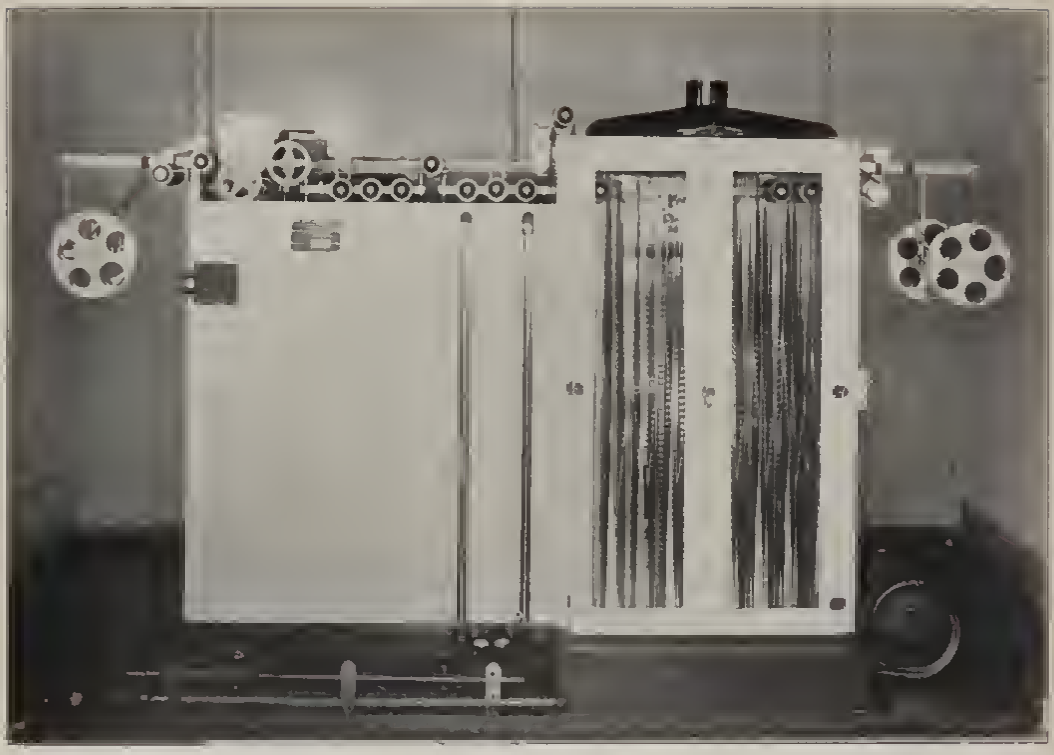
interlocked with the lens-focusing mechanism to correct for focus and parallax In the latter movement, however, it differs basically from routine practice Instead of securing the parallex-compensating adjustment by swinging the entire finder on an arc, the compensation is made by a lateral movement of the finder-lens, which may be roughly compared to the sliding front-board of a still camera The designers state that this method eliminates a number of inaccuracies inherent to the conventional pivoted compensating movement A release button on top of the finder throws the lens back into normal (or distant-focus) position when it is desired to make a quick check of the distant field covered, as in a follow-focus shot

Due to the compactness permitted by the rotating focusing shift, the finder is mounted in remarkably close proximity to the photographing lens, further simplifying the problem of finder-parallax Due to the close relation of the finder and the photographing lens, a specially wide sunshade is used, shielding both objectives

The focusing control follows the pattern familiar at the Twentieth Century-Fox studio, a quadrant and lever mounted on the left-hand matte box arm carrying the focusing scale and control

An important feature of the new camera is the fact that a single focusing scale suffices for all lenses This

Continued on Page 520



Complete Laboratory in One Unit

Editor's Note—Believing that a communication just received from George Schneiderman might strike a responsive note among many other cinematographers who possibly have encountered the problem faced by Schneiderman we are printing his letter on a "One Man Laboratory," which he has discovered. Schneiderman has been in the motion picture business for more than 25 years in the photographic branch of the industry. For fifteen years he was with John Nicholaus in the New York Universal Film Co. laboratories. He erected the first laboratory in the tropics constructed in Kingston, Jamaica, in 1915. He operated the release print laboratory for Fox Film Co. in New Jersey from 1915 to 1917 and was in charge of Fox West Coast laboratories from 1917 to 1923. Since that time he has acted as a first Cinematographer with the Fox Film Co.

by
George Schneiderman, A.S.C.

"AS YOU ARE already aware of my intentions to make pictures in foreign countries where laboratories are not established, it was necessary for me to either build or have built a developing machine for the processing of my film.

"I gave considerable thought to the possibilities of going back to about fifteen years, to what is known in the industry as the rack and tank development. This, however, in view of the fine and great developments made in the industry in all of its branches, seemed like saddling a venture not only with a hardship, but with something that did not possess the efficiency that is now being enjoyed by all makers of pictures.

"In my intensive search to find a machine that would meet my requirements, I feel I was fortunate in locating Hugh H. Gwynne, who has, in my opinion, designed and built the only practical developing machine in existence for my purpose and possibly the use of many others who require small but efficient units, in fact a machine that can be operated by one man, which gives it its trade name of "One Man Laboratory."

The following specifications will give any experienced cinematographer or laboratory man a more comprehensive idea of the utility of this "One Man Laboratory."

"Developing time for positive is adjustable to run from one to four minutes, manufacturing from five hundred to two thousand feet per hour. Negative film has a capacity from two hundred to nine hundred feet per hour.

Continued on Page 525

Destroying Pompeii— in Miniature

by
Edwin G. Linden, A.S.C.
as told to
Walter Blanchard

Enlarged from one of Linden's tests. The temple and city are on one glass, the volcano on another, while the smoke is projected. In this test, the smoke was 1 32 of an inch out of correct alignment.

IT IS OBVIOUS THAT to be of any value to a production miniatures and other special-process or trick shots must look real, lifelike and natural. Equally important, though not so universally realized, is the fact that they must also have feeling, mood and balance. Special-effects scenes must maintain the same artistic standards as the production into which they are cut, in other words the special process cinematographer must make his scenes a perfect match for those of the production cinematographer. The more thoroughgoing this cooperation is, the better will be both the process scenes and the production as a whole.

Technically, of course, special-effects work is based on paying infinite attention to details. One of the most important of these details is absolute rock-steadiness in every phase of the shot. Especially where there are a number of exposures superimposed to form one scene, the slightest "jiggle" or movement in any one exposure will ruin the entire shot. We had one scene in "The Last Days of Pompeii"—the long-shot of the destruction of Pompeii by Vesuvius—which required seven exposures, two were made at six times normal camera-speed, one at ten times normal, three were stop-motion exposures, and the seventh was a normal 24-frame per second shot. In any of these exposures, camera-movement, or even vibration, which would pass unnoticed in a normal shot, would have ruined the entire job.

Due to the extreme care with which the cameras were conditioned, tested and tied down, and the film handled we were fortunate in having to make but one 'take' of this shot. As an illustration of the super-critical point which must be taken in this sort of work, I might mention that we had to keep people from even walking across the stage-floor while we were shooting! Ordinarily a well-constructed stage floor would be regarded as a pretty solid piece of construction—but our tests showed that ordinary, middleweight footsteps walking across the floor produced enough vibration to endanger our shot. Therefore when we actually made the scene, we had the stage roped off so that nobody but the crew actually working the set could approach within thirty feet of the cameras.

One of the first tasks in making this scene was to film the smoke which you saw (or didn't you?) rolling out of the crater of Mt. Vesuvius and the threatening clouds which frowned over the city during the eruption. The smoke and the clouds called for rather different effects so they were made separately. In the case of the smoke, we photographed it in several different ways, at speeds ranging from four to twelve times normal, and in shades ranging from black to white, and from just a thin, lazy wisp to a magnificent roaring volume.

Thousands of feet of negative were exposed on smoke alone (you know at 700 feet or more per minute, it doesn't take long to run up a lot of footage!). Then we would get into a huddle in the projection-room and pick the best takes to use in our composite shot. You'd be surprised how much argument there is in just smoke!

The burning boat in the foreground in some of the scenes was not a miniature, but like the foreground water in other shots, was made normally, at San Pedro.

The city itself was largely done on glass, while Mt. Vesuvius was another glass.

Some of the flames, too, were high-speed miniatures.

In bringing the whole thing together, we had a rather intricate problem. For different sequences the city of Pompeii had to be photographed with varying effects, representing day, dusk and destruction. The first required a bright sunshiny effect, with the foreground water calm and bright, and the smoke from Vesuvius rolling lazily, almost imperceptibly. Then the appearance had to be changed to dusk with lights and a glow from the volcano. Finally, the scene had to be changed entirely, Vesuvius, as you remember, had to do its stuff. The city had to take on a murky hue, the foreground water had to do some tossing about, and over the city a cloud of ashes was requested by the Powers that Be. Mind you, the ashes must look like ashes, but mustn't obscure the picture!!

In assembling these various ingredients the city and the volcano which were glass paintings were lined up in their proper relation. The smoke, the clouds and the foreground-water were projected into their proper places by stop-motion background projection, and the flames—well, some of them were also projected in, and others were painted in on yet another glass, carefully lined up with the others. Of course, partially-silvered mirrors were employed in some instances, to simplify the physical group-

Continued on Page 522

Innovatians Mark New 20th Century Silent Camera

Continued from Page 517

is made possible by a unique lens-maunt, the invention of Messrs Laube and Kaufman Essentially, this lens-maunt consists of three collars the outer collar, attached to the camera, the inner collar, attached to the lens, and an intermediate collar which acts as a cam to provide the focusing movement The lens itself does not rotate but maves straight in and out It is supported firmly at both ends of the mount on sliding bearings the inner end being supported by the inner end of the inner, or lens-carrying collar, fitting into the outer collar while the forward end of the collar is supparted by several small, renewable bearings extending through the intermediate collar

Cam-shaped slots are cut in the intermediate collar, and in them run tapered rollers, one set of which is anchored to the inner collar, the other to the outer collar Therefore, when the intermediate collar is ratated, the lens in the inner collar is moved straight forward ar back, without ratation The rollers are pressed into their respective slots by spring pressure, autamatically compensating for wear The coms are cut so that regardless of the focal length of the lens in question, rotating the intermediate collar to any given degree will bring any lens to a focus at the same point This obviously permits the use of a single, remately located focusing control and scale for all lenses A simple mechanical linkage interconnects the lens-maunt, focusing control and finder No supplementary coms are necessary between the focusing mechanism and finder, and there are no accessories ta be changed when lenses are switched

Regarding the development of the camera, Laube says, "In creating this camera, we have tried not only to produce a successfully noiseless camera, but to produce a more perfect photographic instrument as well One which will meet today's known problems fully, and which will be prepared to cope with every one af tomorrow's needs insofar as we can foresee them In the history of cine camera-design, there are certain designs which stand out like beacons, plainly marking the course of cinematographic progress Following Eastman s invention af celluloid film, and Edisan's invention af the Kinetoscope, there ensued a period of rather aimless pioneering almost any camera that would make a moving picture was accepted, regardless af how carelessely it was designed, or how crudely it worked About 1910, Bell & Hawell introduced scientifically standardized design, and a new nate in precision engineering Roughly a decade later, the Leonard-Mitchell design answered the call of the times with a new, faster-working camera It is significant that both of these designs have endured, with only minor modifications, until today Though their designs were laid down ten and twenty-five years ogo, these cameras are still photographing aur pictures taday They are at once a challenge and an inspiration ta any man who undertakes the design of a professional camera taday

"In planning the Twentieth Century Camera, we have striven to strike an equally faresighted note A silent camera is in itself a worth-while development but if it can offer no real advancement beyand the mere absence of noise it cannot be considered a really enduring achievement_ Eliminating noise will autamotically free Cinematography from the physical shackles imposed by quarter-ton camera-blimps, and speed up production, taking care of today's immediate needs, but leaving unanswered the needs of the future Putting it another way, we are getting along adequately enaugh with our present repeatedly rebuilt cameras and blimps, each new blimp-design, too, tends toward easier aperation and lighter weight Eliminating the need for blimps would unquestionably facilitate production to the extent of permitting economies which would quickly offset the initial investment in new equipment but if the cameras, as photagraphic instruments, did nat yield better photography, and make provision for meeting such future needs as we can foresee, we would not be essentially any better off thon if we continued using present-day equipment

"We have tried to fulfill both of these requirements in the Twentieth Century Camera Silent operatian, we have definitely secured The camera does not need any saundproof covering at any time This, together with the general layout of the apparatus, makes for faster —and therefore more economicol—operetion Instead of a crew of four men needed to mave a 400 paund blimped outfit a single man can shoulder this 82-pound camera and move it as easily as only pre-talkie equipment

Destroying Pompeii---in Miniature

Continued from Page 519

ing of all these various elements Obviously, the shot had to be lined up very carefully, and many tests made to make sure that the smoke didn't roll from the wrong place, or that some other misalignment didn't occur

Finally, in several of the shots, people were added in the foreground by the travelling-matte process—and the shot was complete, having passed through half-a-dozen or more different cameras

One of the finest examples of the miniature-builder's art was the "Temple of Jupiter," constructed under the supervision of Willis O'Brien by Gus White and his assistants In the background, behind the temple (which was an exact reproduction of the original, according to the most authoritative reconstructions), was Vesuvius, belching forth its fire, lava and ashes Overhead, the clouds of ominous-looking smoke Throughout the city, the burning and smoking buildings And finally the crash and destruction of the temple

This was one of those nerve-racking shots, for it had to be made—and made right—at one take The slightest slip on the part of any one of the twenty men who worked this set would mean weeks of hard work rebuilding and reshooting the scene—not to mention thousands of dollars extra expense to the studio

We made test shots of all the effects except the actual crash of the temple—the most important effect, and the only one we couldn't test Thanks to the efficiency of Harry Redmond's crew of 'effecters' only minor changes were needed A little less smoke here, a little more flame there, and so on Then the four cameras were again tested for steadiness, for here, too, steadiness was a prime requisite, as chariots, horses, and people (real ones!) had to be processed in later—and even an earthquake couldn't explain a background that jiggled while the foreground didn't

The tests are projected, and the final minute changes are made

"Zero hour" is at hand

The order, "Hit 'em!" is given The lights blaze on Flares and fire-pots are lighted Hundreds of smoke-pots are fired electrically Everything is ready

"Camera!"

"Let 'er go!" The racking motion of the earthquake starts—the wires start the building to crumbling, and "go" she does

"A-a-ah!" All hands sigh with relief Perfect the first time!

Did it look real? There were some who saw the "rushes" who wouldn't believe it was done in miniature!

The scene in the arena, in which the Colossus crumbles and falls after the start of the earthquake was another thrillingly difficult scene It was not 'done with mirrors" as some reviewers have expertly stated but was a combination of a full-sized arena set, with real people and horsemen, a miniature arena, glass painting, miniature projection, and a life size breakaway Colossus which was photographed at high

speed The task of merely combining these shots into a homogeneous composite is an intricate problem of special-effects trickery in itself

How were all of these earthquake and eruption effects made so lifelike? Well, here in California we have a certain amount of first-hand information about earthquakes, even if we are a bit shy on volcano lore The volcano part, however, we perfected through careful study of scientific descriptions of actual eruptions, and analysis of films of volcanic outbursts, including 'Krakatoa' and newsreel scenes of actual eruptions of Vesuvius However, we had to take dramatic license in many respects, for a real eruption is such a grimly slow-moving thing that it lacks the thrilling 'punch" demanded on the screen!

Making these scenes is almost as gruelling as living through a real eruption—though for an entirely different reason With so many tiny details which may go wrong and spoil a scene which cannot be re-taken, the nervous tension is terrific After living through "The Last Days of Pompeii,' following "Kong" and "Son of Kong" I can heartily sympathize with the special-effects "ace" who, after successfully filming a miniature in which a $50,000 scene was made in 20 seconds had a nervous breakdown and spent a month in a sanatorium!

Technical Progress in 1935

Continued from Page 513

familiar 16mm for silent films, and the R C A 16mm, with one row of perforations eliminated and the edge of the film utilized for the sound-track, for sound-on-film Two standards are known in the 8mm field Eastman's original type, in which specially perforated 16mm film is split lengthwise after processing resulting in a projection-standard of 8mm, single perforation film, and the newly-introduced Bell & Howell pre-split 8mm film in which both camera and projector use single-perforation stock 8mm wide

Abroad, in addition to these standards, several others are found in the substandard field Among these are the Pathe Rural 17.5mm non-theatrical standard, upon which a sound-track is sometimes added by suppressing one row of perforations, a 16mm sound-film in which both perforations remain, and sound-track and picture are in the same relation as in standard 35mm film, and Pathex 9.5mm amateur film, which is center-perforated

Sponsored by the Academy of Motion Picture Arts and Sciences, a movement is under way to standardize release-prints on 2,000 ft reels Despite the cost of the new equipment involved in theatres and exchanges, important economies are anticipated, and several of the major distributing-firms have agreed to make such a change for domestic releases after the first of the year

Sound

A general improvement in sound-quality has been noticeable

Both Western Electric and RCA have developed so-called push-pull' recording and reproducing methods productive of more natural quality, lessened ground-noise, and a much greater volume-range The system used in conjunction with Western Electric recording was developed by Douglas Shearer, A S C and his associates at the M-G-M studio, where it is in use

In consequence of these high-quality recording methods, it is understood that several major studios are supplying two types of release-prints one carrying the "push-pull" sound-track, for theatres equipped with reproducers and amplifiers capable of reproducing from such

a track and a re-recorded versen for theaties with alder equipment

An interesting development was the Miller-Phillips Mechanagraphic recording system This uses a stylus ta cut a mechanical record in an apaque coating on the film, which record can then be either re-recarded mechanographically or printed photographically far releases Greater resolving power and consequent improved quality are claimed

The Berndt-Maurer Carporatian introduced a new type of ascillograph (galvanometer) recorder which may be substituted for a glow-lamp, and produces a Variable Area track

Considerable use was made of Vertical Cut ("hill-and-dale") disc recarding for recording musical selectians, and some studias used acetate discs similar to hame-recording phonograph records for immediate playbacks

The renewed interest in color cinematography brought the problem of high-quality film records on calor prints to the fore

Standard Sound

16mm sound-an-film appeared at last to be wresting substandard supremacy tram the more unwieldy sound-an-disc A number of new 16mm saund-an-film projectors—all using the RCA single-perforatian standard—were introduced Amang them are such familiar names as Bell & Howell, Ampro, Victor, DeVry, and the like

Bell & Howell announced the farmatian of a 16mm sound-film library, while trade papers carried reports that British and other producers were reducing their 35mm theatrical releases to 16mm very quickly after general release af the 35mm version A noted Hallywood Producer, Edwin Carewe, formed a compony to produce religious features for 16mm non-theatrical release

Bell & Howell perfected an excellent reductian printer for aptically reducing saund-tracks to 16mm, and DeBrie, of Paris, entered the American field with reductian printers, develaping machines, and other substandard apparatus

Projection

Professional projection problems seemed heightened by the increase in density, and the consequent need for more intense light, resulting from noturol-color films Partly to meet this need the National Carbon Compony has develaped severol new types of projectian carbons, ond lamp manufacturers, optical firms, ond the like hove contributed advances in projection-lamps, condensers and lenses

In the substondord field, o generol increase in the power af projection-lamps was evident 16mm projectors of 1,000 watts were introduced, and 8mm projectors af 300 ond 400 watts placed on the market

With the increased use of 8mm cameras, a new interest in projectors capable of interchangeably projecting 8mm and 16mm film became evident in many quarters

Laboratory Methods

The commercial applicatian of the involved processing required for Kodachrome 16mm color-film, which is stated ta invalve more than 35 separate operatians, was undoubtedly ane of the greatest achievements in the laboratory field

Competition fram studio labaratories appears ta be farcing the modernizatian of commerciol plants

The Eastman Kodak Co introduced the 'Argentameter," a device for determining the silver content of hypa solutions A buffered sodium sulfide solution is added to a standard quantity of the solution to be tested, which is then placed in the argentometer, in which the altered transmission of the salution alters the reading given by a microammeter cannected ta a photronic cell

Several labaratories hove been experimenting with photocell-densitometers In some instances, such devices are understaad to be used commercially controlling the processing of saund-track

Art Direction

"Becky Sharp' praved that much of the success or failure of natural-color films will depend upon intelligent art-direction, and it is generolly conceded that the future of color rests on the shaulders af the Art Directors and the Cinematographers

Problems of Control

Continued from Page 514

the consistency of contrast

The problem foced in photographic reproductian can be condensed to that of creating a visuol sensatian in the finished print identicol to that conceived by the eye when observing the original abject This sensation is governed principally by the amount of brightness as a whole and by the brightness differences which ore identicol with contrasts While it is relotively simple to control photographic results by exposure and processing sufficiently ta satisfy the request for identical brightness to the eye in the finished print as

in the natural object the problem of matching brightness differences or contrast in the final photographic reproduction to that conceived by the eye from the natural object is of an extremely complicated nature

The solution lies in the fulfillment of the above given equation which calls for an overall gradient equal to unity

In anaylzing this equation and applying it to existing practical conditions the following statements must be thoroughly understood In every laboratory the positive gamma is a constant factor for the reason that faithful sound reproduction depends upon fulfillment at the same law controlling overall gamma Thus the product of the negative gradient multiplied by the positive gradient and also the positive gradient itself are constant, that is, they are fixed values not eligible to any alteration of great proportion

This fact places an enormous responsibility on both the cameramen and the negative developer as the negative gradient must be of a definite uniformity the maintenance of which is a difficult tosk due to the mony variables introduced by the present methods of photographically recording a motion picture

The next article offers an analysis of these difficulties which comprise the principal practical problems of the cameraman

Complete Laboratory in One Unit

Continued from Page 518

"The operator has accurate gauging of his developing time by a mechanical and manual control

"The chemical solutions as for temperature and mechanically controlled refrigeration and thermostotic

' Agitation of the developing solutions is done by a circulating pump

"All water and moisture is entirely removed from the film after leaving the last wash tank and arriving in the dry box This is done by an ingenious mechanical absorber

"The entire mechanical construction of the machine is built from high-alloy non-corrosive non-magnetic steel

"The machine is completely insulated to aid temperature control

"The phenomenol part of this machine is that it requires little space The entire set-up can be installed in a room twelve feet lang ond six feet wide

"The dimensions of the Junior model are

' Ten feet, six inches lang, by five feet, nine inches high, by three feet wide

' Shipping weight will not exceed one

thousand pounds, or five and one-half marine cubic tons

"The machines will be distributed through the Premier Motion Picture Equipment Company, located at the factory of the Gwynne, "One Man Laboratory," Developing Machine Company, 8226 Santa Monica Boulevard, Hollywood

An Etcher of Character

Continued from Page 515

seeking to clutch at men who dare fly and to claim them for its own Every scene shows this atmospheric villain

Interior scenes, of which there are many, depict a normally aired room but with the clinging fog constantly menacing just outside wide windows Here again, lighting requirements were far from elemental These scenes had to be lighted twice, once for the clear interiors and again for the murky exterior

Handling of the fog itself presented intricate mechanical difficulties, mainly in keeping the fog out of the interior sets and outside, where it belonged properly

A series of fans handled the outside fog satisfactorily, but the thin vapor insisted in penetrating the interior set Then was evolved an ingenious series of air-pumps leading into the inside set, setting up just sufficient air circulation to keep the fog outside but not interrupting its normal action in the open air

To complicate further the conditions, beams from a revolving beacon penetrated at regular intervals foggy exterior and lighted interiors

Edeson combines within his stocky, pleasant person a remarkably exhaustive knowledge of cinematographic machineries with his talent of pictorial dramatic revelation At his home, his private laboratory gives him opportunity for extensive experimentation There is little in the great field of photography and its allied subjects that he is not, from first-hand handling, surprisingly familiar with

But the finest of tools must be properly used, and it is with their use rather than the instruments themselves that Edeson is most concerned Technically, his photography is correct With this background of laboratory perfection, he goes forward into the field of showmanship A keen student of audience reaction, he never hesitates to employ proved expedients to heighten dramatic effect He is adept at what may be termed cinematographic change of pace, of subordinating one sequence that the following incidents may burst forth in accented strength


EASTMAN DUPLITIZED POSITIVE FILM
EASTMAN 1359 *Sound Recording* FILM
EASTMAN *SUPER X* NEGATIVE
EASTMAN FINE GRAIN BACKGROUND
EASTMAN POSITIVE FILM
EASTMAN DUPLICATING NEGATIVE
J. E. BRULATOUR, Inc.

New F 2.7 TAYLOR-HOBSON COOKE LENS

now standard with FILMO

70-D, 70-E, AND 121 16-MM. *Cameras*

70% greater speed . . . ideal correction for both color and monochrome movies

The new Cooke 1-inch F 2.7 lens makes movies possible under a wider range of lighting conditions. It extends the camera's use indoors and is of particular value when making Kodachrome or other color movies. This lens gives the sharp, crisp pictures which have made Taylor-Hobson lenses the choice of professional film producers throughout the world. It is, of course, instantly interchangeable with the fast F 1.5 and other Taylor-Hobson lenses.

FILMO 121

This featherweight camera, measuring only 2¼ x 3½ x 5¼ inches, loads instantly with 50-foot film magazine, permitting free interchange of black-and-white and color film, with no film spoilage. Offers built-in exposure calculator, two film speeds (16 and 24), single frame exposure, and typical B & H sturdy, die-cast, aluminum housing. Filmo 121, with F 2.7 lens, $72.50. Case, $7.50.

EXTRA TAYLOR-HOBSON LENSES FOR FILMO 16 MM. CAMERAS

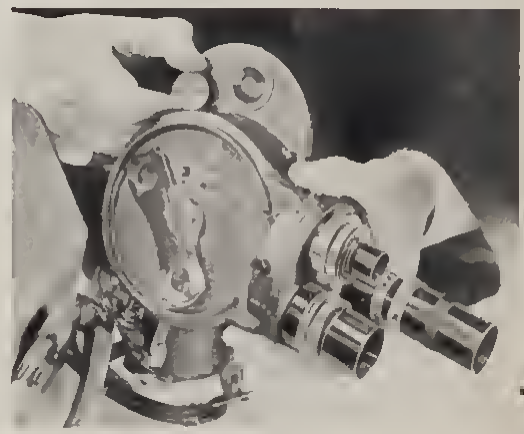
Each Filmo is designed for use with a wide range of Taylor-Hobson lenses. These lenses make excellent gifts for owners of Filmo 16 mm. Cameras.

15 mm. F 2.5 universal focus, $15.00
15 mm. F 2.5 in focusing mount, $55.00
1" F 2.7 universal focus, $30.00
1" F 2.7 in focusing mount $45.00
1" F 1.8 in focusing mount, $75.00
1" F 1.5 in focusing mount, $75.00
2" F 3.5 in focusing mount, $55.00
3" F 1 in focusing mount, $72.50
4" F 4.5 in focusing mount $75.00
6" F 4.5 in focusing mount $115.00
6" F 5.5 in focusing mount, $75.00

BELL & HOWELL COMPANY

CHICAGO • NEW YORK • HOLLYWOOD • LONDON

World's largest manufacturer of precision equipment for professional motion picture studios



FILMO 70-D

This, the master of all personal movie cameras, is pictured above. Seven speeds: 8, 12, 16, 24, 32, 48 and 64 frames per second. Three-lens turret, variable spyglass viewfinder, relative exposure indicator for speeds other than normal, accurate speed governor, 216° open shutter segment. Critical focuser is optional. Hand crank, electric motor drive, and 200- or 400-foot external magazines are available as extra equipment. Filmo 70-D, with F 2.7 lens, $188. Case, $24.50.

FILMO 70-E

The 70-E is similar to the 70-D, lacking only its turret head and the variable area feature of the spyglass viewfinder. Operates at 8, 16, 24, and 64 frames per second. Like the 70-D it has 100-foot 16 mm. film capacity and may be fitted with the same accessories. Filmo 70-E, with F 2.7 lens, $133. Case, $17.

FILMO 75

The 75 is the lowest-priced 100-foot capacity 16 mm. camera of quality. Its light weight, compactness, and exquisite beauty have made it a favorite for general field or sport use. Small enough to slip into a coat pocket. Operates easily in one hand at the normal speed of 16 frames per second. Filmo 75, with F 3.5 lens, $59.50. Case, $5.50.

Bell & Howell Company
1848 Larchmont Ave., Chicago

Please send me booklet about ☐ Filmo 16 mm Cameras and lenses, ☐ 16 mm. Projectors, ☐ 8 mm. Movie Equipment. Also the name of a nearby Filmo dealer.

Name

Address

City State

AMATEUR MOVIES

25c

this issue

Filming Snow with Filters
Interiors Without Lights
Christmas Continuity
Elements of Composition
. . . and other features

DECEMBER
1935

IT KNOWS ITS WAY AROUND THE HOUSE!

YOUR Christmas sequence may call for a wide variety of shots—from father trimming the Christmas tree to the children hanging up their stockings in the firelight

And, to avoid disappointment . . . we suggest that you load your camera with Agfa 16 mm Fine-Grain Superpan Reversible Film . . . a film that is specially designed to meet all types of indoor lighting conditions.

This film has exceptional speed and is sensitive to all colors, including red. Its unusually wide latitude tends to minimize errors in exposure, whether you're working by daylight or by ordinary electric light

And—its extreme fineness of grain gives you larger, more brilliant screen projection, with greater depth and detail and without noticeable grain

Agfa 16 mm Fine-Grain Superpan Reversible is available in 100-foot rolls at $7 50, and in 50-foot rolls at $4 00, including processing and return postage

MADE BY AGFA ANSCO CORPORATION IN BINGHAMTON, N. Y.

PROFESSIONAL Criticism of the Amateur picture is a part of the service offered by the AMERICAN CINEMATOGRAPHER. Many are not aware of this. Hundreds of pictures have been reviewed this past year by members of the American Society of Cinematographers for the Amateur.

AMATEUR MOVIE SECTION

Contents . . .

Next Month . . .

- There will be more about interior lighting Commonsense advice with simple equipment on how to get the most out of what you have on your interior shots
- Another interesting gadget will be presented something you can make yourself
- A timely continuity, and of course other good suggestions
- But the biggest news will be the announcement of the 1935 Amateur Movie Prize winners

Photo by Karl A. Barleben Jr.

Filming Snow Scenes With Filters

by
Karl A. Barleben, Jr.

ONE of the wonder-spectacles of winter is a snow storm and its results. Filmers in sections where snow is not an uncommon event have at their disposal some of the finest picture material imaginable, for while snow is white, and therefore possibly drab and uninteresting to some workers, it holds certain beauties which never fail to go over big on the home movie screen—if the filming is done correctly. Make no mistake—shooting snow is not as easy as it looks, for if the delicate textures of snow are to be preserved, you must do more than merely press the button of the camera. In an effort to outline briefly a few of the essentials in snow photography, it might be well to dwell a few moments on the fundamentals of this fascinating work.

The professional movies frequently contain snow scenes which are photographic gems—crystal clear and bright, alive with sparkling sunlight, rich in shadow and snow detail and texture. Many the amateur filmer has seen such scenes and attempted to duplicate them only to become sadly disappointed with his efforts along these lines. Why? Principally because a few elements of snow photography were over-looked or ignored.

In order to fully understand snow photography, it is necessary to understand snow. One of the most important things to remember is that while snow appears white to the eye, in truth it reflects various colors which are nearby. This is easy to understand, but there is another tricky phase: the shadows in snow. Tracks, foot-prints, ruffles and all other manner of indentations in snow naturally cast shadows which to us appear as dark or black. Actually these shadows are **blue**—notice this for yourself the next time snow is on the ground, for the truth of this statement. The shadows being blue, then, do not readily manifest themselves on the film, blue photographing as white, resulting in snow which lacks texture and detail—we are all familiar with the white-wash effect in which only a plain expanse of white is to be seen. It looks as much like snow as a bucket of milk! Such results are indeed discouraging, yet can be readily remedied by the use of a filter.

Just which filter to use to bring out the shadows and details depends upon several factors, chief of which is the amount of correction desired. With a panchromatic film, a pale yellow filter such as the Wratten K-1, will produce a normal reproduction of snow on the film as the eye sees it—the blue shadows will be shown as dark in the picture, and the texture of the snow brought out quite clearly and satisfactorily. A heavier filter, such as the Wratten G will produce over-correction to some extent, while a Wratten 23-A or A will result in decided over-correction. These filters may be properly classed, for this purpose, as effect filters, although there will arise circumstances where they are the means of producing very

Continued on Page 549

Interiors Without Lights

by
William Stull, A.S.C.

AS I WRITE this, a strong beam of sunlight comes through a window by my desk, lighting me warmly. Now, if I were outside the window, in the same sunlight, no one would deny that a member of the sixteen-or-eight brigade could photograph me — granting, of course, that he cared to waste film on so unprepossessing a subject. Why not inside the window, as well? The sunlight seems almost as strong and warm. What's to prevent using it for photography?

Putting the question up to my Weston meter, I find that outside the window, the correct exposure with Super-Pan would be about f 16—and that inside, the sunlit areas would be correctly exposed at f 8. Obviously then, a passing cinefilmer could get a very nice shot of me here without using any lights.

But it would be distinctly a one-sided lighting. The side of my face toward the window would be strongly lit, while the side away from the window would be heavily shaded.

Outdoors, the answer to such a lighting problem would be to use a reflector on the shadow-side, to throw some of the sunlight back into the dark side of the subject. Well, the same thing would work quite as well indoors as out. Placing the reflector in the proper place, we could throw back enough light to brighten up those heavy shadows without flattening the picture by wiping them out completely.

And there, in a nutshell, is the secret of making interior scenes without lights: use the light from a window for the highlight side of your shot, build up the illumination in the shadows with reflectors—and there you are! It's as simple as that.

The simplest sort of lighting, of course, is the cross-light just described, and sketched in Fig. 1. Next to that (and usually more pleasing) is a straight or three-quarter front-light, as seen in Fig. 2. In this case, the window through which the light comes should be rather wide, to simplify placing the reflector. Naturally, with this sort of lighting, the direct sunlight will fall on more of the background area, giving you more depth in your shot. Where the sun does not strike, your picture will be either a jet-black shadow, or badly underexposed, unless you have additional reflectors to throw light on the background as well as on the subject.

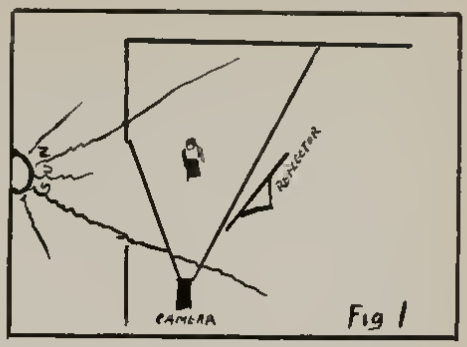


Fig 1

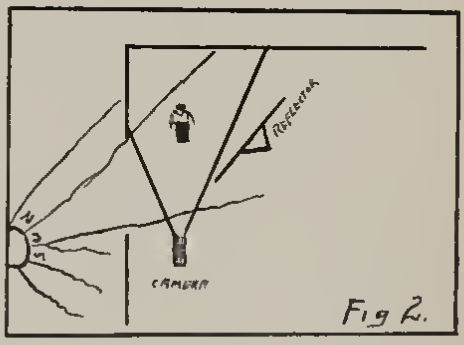


Fig 2.

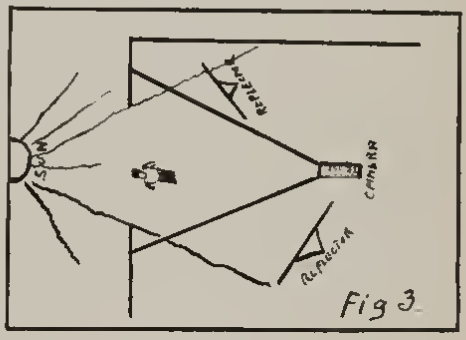


Fig 3.

Sometimes, too, you can make very effective back-lit effects this way: placing subject and camera as shown in Fig. 3. Two reflectors will be necessary, one on each side of the camera, with one nearer the subject than the other, so that we still have a highlight side and a shadow side. For the best results, the sunlight should come from a rather high angle, and it is well if some shrubbery or the like is outside the window, blocking off the lower half through which we would otherwise shoot—and thereby eliminating the uneven exposure between the foreground and that part of the background seen through the window.

These effects, though, are among the more elementary ones we can get indoors. If we have really fast lenses—say, f 2.5 or faster—we can get away from the direct sunlight and its harsh lightings. There is really a surprising amount of light to be found by windows through which the direct rays do not come—and it is a softer, diffused light which gives infinitely more satisfying photographic rendi-

Continued on Page 542

Continuity for a Christmas Comedy

by
J. Dickinson Reed

MAIN TITLE— DEAR SANTA

Scene 1 LONG-SHOT of a group of boys playing in the snow

Scene 2 MEDIUM-SHOT of same One of the boys, "Buddy," is seen to stop, pull out his watch, and start to leave The others cluster round him, urging him to stay a little longer

Scene 3 CLOSE-UP of "Buddy" He indicates plainly that he has to go, and moves forward into the camera

FADE OUT

Scene 4 FADE IN Long-shot inside of house, in front hallway Buddy comes in, hangs up his coat and cap, and hurries up the stairs

Scene 5 CLOSE-UP of bathtub faucet as water is turned on

Scene 6 CLOSE SHOT of floor in corner of bedroom Buddy's garments are thrown into the scene, one after the other

Scene 7 CLOSE-UP of Buddy's bare feet hurrying down hall

Scene 8 CLOSE-UP of feet entering bathroom

Scene 9 Medium CLOSE-UP of Buddy in bathtub, very energetically scooping himself

Scene 10 CLOSE UP of Buddy in tub actually washing behind his ears

Scene 11 LONG-SHOT of Buddy, enveloped in a big bath-towel, drying himself

Scene 12 MEDIUM-SHOT of Buddy, in his BVD's, getting out a clean shirt

Scene 13 CLOSE SHOT of Buddy, fully dressed in clean clothes, in front of the mirror, combing his hair He is taking great pains with it—when he finishes he surveys himself critically, picks up the comb again and smooths out one slightly out-of-place lock, sets the comb down, and turns as if to go

Scene 14 LONG-SHOT in the dining-room The table is set for lunch Mother comes in with the last dish, and goes to the door, as though to call Buddy

Scene 15 Medium LONG-SHOT toward door Mother enters the picture, and just as she reaches for the doorknob, the door swings open, revealing Buddy, washed and combed and dressed in his best Both stop

Scene 16 CLOSE-UP of Mother She is speechless with surprise

Scene 17 LONG-SHOT toward door, with table in foreground Buddy marches past Mother, and takes his place at the table She follows him, and starts to serve lunch

Scene 18 CLOSE-UP of Buddy, eating Shoot this at 8 frame-speed to show him eating at racing speed LAP-DISSOLVE (or fade out and in) TO

Scene 19 CLOSE MEDIUM-SHOT of Buddy (normal speed) He has finished eating He pushes away his empty plate, folds his napkin, and leaves the table

Scene 20 LONG-SHOT in dining-room Buddy comes in, wearing his overcoat and rubbers, and carrying his cap He kisses Mother good-bye, and leaves

Scene 21 LONG-SHOT of Buddy walking briskly down the street

Scene 22 LONG-SHOT at corner Buddy gets into a street-car

Scene 23 CLOSE-UP of Buddy in street-car, made from within the car He sits expectantly, glancing out of the window now and then

Scene 24 LONG-SHOT at down-town street corner A street-car stops, and Buddy gets out

Scene 25 LONG-SHOT on down-town street Buddy is seen walking hurriedly along, weaving around the slower-moving shoppers

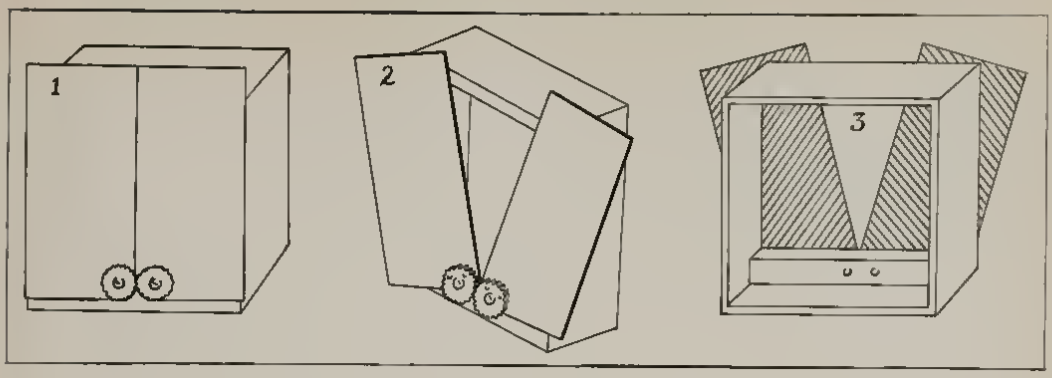
Scene 26 LONG-SHOT of entrance to big office-building Buddy enters the scene and goes into the building LAP-DISSOLVE (or fade out and in) TO

Scene 27 Same as Scene 26 Buddy and Father come out of the building together, and walk off

Scene 28 Medium LONG-SHOT of crowd gathered before a store-window

Scene 29 Series of CLOSE-UPS of children with their noses pressed close against the glass

Continued on Page 548



Building a Home Made Wipe-off

by
Arthur Wolff

THIS simply built combination sun-shade and wipe is made of material easily shaped and cut and available to anyone

Tin is used for the foundation, the finish is black cardboard glued to each side the tin after it has been cut into the desired sizes and shapes

The wipe wings are made to operate smoothly as shown in Fig 2 by operating them in unison by means of the small gears shown at the center bottom of the box and on the inside lower corners of the wipe blades

Usually illustrations can tell more quickly and plainly how a thing operates and is built Therefore if you will refer to Fig 1 you will see the box as it looks from a front view with the wipe blades closed The next figure shows the blades slightly open giving a fan effect to the picture The next figure which is Fig 3 is a rear view of the effect box On this sketch you will see a small block of wood at the bottom used to fasten the center gears

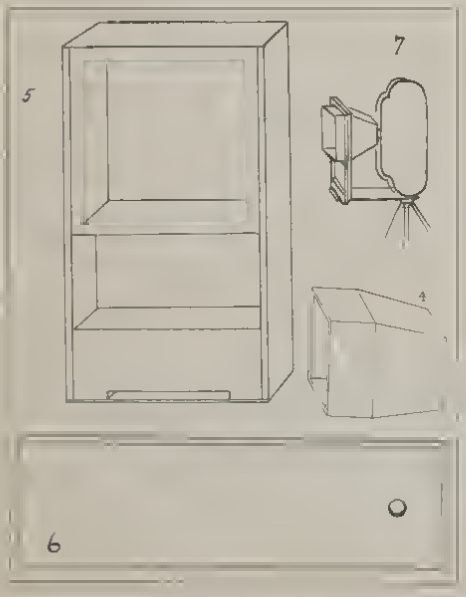


Fig 5 is the assembly less the wipe wings Fig 5 together with Fig 6 gives you the complete assembly Fig 6 is merely a ruler bought in the 5-and-10-cent store The hole drilled in the right side is for placing over the screw in the tripod so as to fasten this ruler between your camera and the tripod head The other end of the ruler goes through the slot at the bottom of Fig 5 The entire outfit assembled is shown in Fig 7

Fig 4 is the complete sunshade and effect box This fits in the upper opening of Fig 5 which is a frame work made to hold this and the ruler

Fig 5 calls for a more rigid material as this portion of the assembly must carry whatever weight the device might have I made Fig 5 out of wood

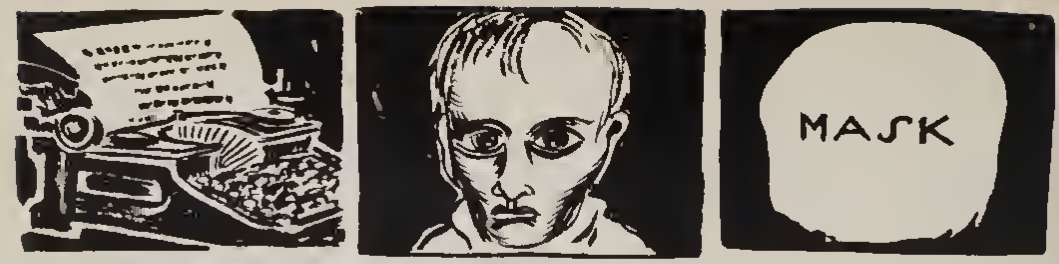
While this is built merely for a fan wipe the imaginative constructor will possibly find many other ways of applying wipe blades The material used is so cheap and plentiful that if a device of this sort is used only a few times it pays for itself

Most of the gadgets I build for my camera are made from tin This works very easily and as a general rule the tools I require are merely a knife and scissors

After my patterns are cut I put them in their proper place and hold them together with black gummed paper tape (the same as is used for lantern slides)

I have not given measurements as they will be governed by the type of camera you are using However, as a guide I might mention that the outside dimensions of the box as shown in Figs 1, 2 and 3 are 3 x3 x1¼". The measurements of Fig 4 are 3" high at front 3¼" from front to rear and the rear is 2" square The hole, of course, is governed by lens size The height of Fig 5 is 5⅞", the width 3⅜"

Those who like to make their own gadgets will find this simple to construct



Definitions of Elements in Composition

by
J. Belmar Hall,
Instructor, Department of Cinema, USC

LINE Design begins with line Connected and inter-laced lines create areas In architectural and costume design, lines denote qualities that are important, i e

VERTICAL
HORIZONTAL
OBLIQUE
SPIRAL or CURVED LINE
BROKEN

Structural lines are found in the fireplace, furniture, in the doorway and windows, in the silhouette of a costume

A line may be narrow or wide The wider it is, the more it is like an area A line or lines within the outline add interest and complexity to a subject, such as architectural relief, embroidery pattern, wall panels, etc

It will be found that a tone of dark is formed by the association of two or more lines, this tone may be darkened by increasing the width of the lines, or by bringing them closer together

PRINCIPLES Variety and interest is well selected lines used together Measured, size and number of lines of different types determine the final result

Variety in grouping of lines eliminates monotony The wider the line, the greater will be its accenting value

Design must have a main axis This starts the eye moving, other lines in the design must be subordinated to the main line Subordination is brought about by the selection in size, length and width The position and direction of a line is important in relation to other lines

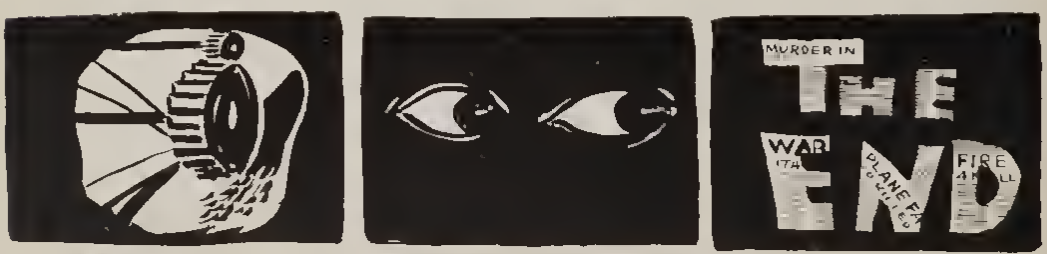
In a group of lines, one line or pair of lines must predominate in size and position If a line, space or color asserts itself to the detriment of others the result will be discord, not harmony. The main or structural lines of an object or design determine the location of the center interest Structural lines should determine the character and general direction of the other lines In speaking of "good design," we mean that the line qualities and line divisions are structurally good and artistically handled

Next month we will take up the other principles in structural design in composition Dynamic symmetery also will be covered as this is one of the most important things in good composition

THE AUTHOR'S GHOST

SYNOPSIS A study in lines, angles and tricks of the 16mm camera built around a dummy figure of an author who has only saw-dust for brains In his mad search for ideas, such that could come only from a brain of this kind, we are led a merry chase into all the abstract forms that will make a perfect montage or mounting of shots that are related to the story through the movement they express Each shot must build up the tempo until the brain-pictures that flash through the dummy head of the author cannot stand the strain any longer as ideas meet and clash

Continued on Page 550



Making Fades on Positive

by
Thomas R. Barrabee
Chemist Dye Research Laboratories

FILM editing, that phase of motion picture production during which the many scenes of a picture are assembled and united into a smoothly flowing story, is a very important job in the preparation of a successful picture In this work, the film editor calls to his assistance many mechanical devices to produce the proper continuity and tempo, one of the simplest of these being the fade

The first all metal cameras manufactured about 1912 by the Bell and Howell Company incorporated in their construction a variable gear-driven shutter mechanism by which the operator was able to continuously and evenly decrease his exposure from normal to zero over a film length of eleven feet These cameras, which were used by Essanay, were improved shortly after to produce an eight-foot fade and finally to make a four-foot one, the length which is produced by the present camera

When such a negative was printed the general density of the print increased to such a point that the screen gradually became completely dark, hence the name "fade-out" which was adopted for this effect By reversing the procedure on the beginning of a scene a "fade-in" is produced

With the gradual development of motion picture technic, and particularly with the advent of motor-driven cameras which accompanied the introduction of the sound picture, the practice of making fades in the camera on the original negative was discontinued A fade in a release print is now produced either by chemically bleaching the negative or by making a duplicate in an optical printer, in which case the variable shutter is again brought into play

In the initial assembly of the picture by the film editor it is sometimes desired to see the effect of inserting a fade at some point In this case the print is dyed By so doing, no alteration is necessary in the original negative until such time as a definite decision is made that the fade gives the desired effect.

Such a fade made on a print with dye should be quite neutral in color, should take into the emulsion without difficulty and be quite opaque at the end Many dyes have been tried for this purpose but up to the present time no single dye has been found with these properties Recently a material was introduced for this known as Foto Fade which consists of a mixture of dyes and chemicals balanced to give the desired effects Extensive tests by a number of the laboratories in Hollywood have shown that Foto Fade produces a uniform neutral fade quite simply by a mechanical dipping process

In the majority of productions by the amateur reversal film is used so that the editing is done on a positive Since few amateur cameras are equipped with a variable shutter mechanism, the availability of an easy and rapid method of making fades brings to hand an additional and useful tool

A pint of water in which five grams of Foto Fade have been thoroughly dissolved is placed in a deep narrow vessel such as a cylindrical graduate The film to be dyed is immersed frame by frame, the lower end being weighted with a clip The film is withdrawn in a similar manner, squeegeed between damp cotton, rinsed and dried An immersion of about one minute is necessary to render the film entirely opaque The solution of Foto Fade keeps indefinitely and hundreds of fades can be made from a single pint of solution Since the dye sets into the emulsion, it is not affected by projection and the result is quite permanent

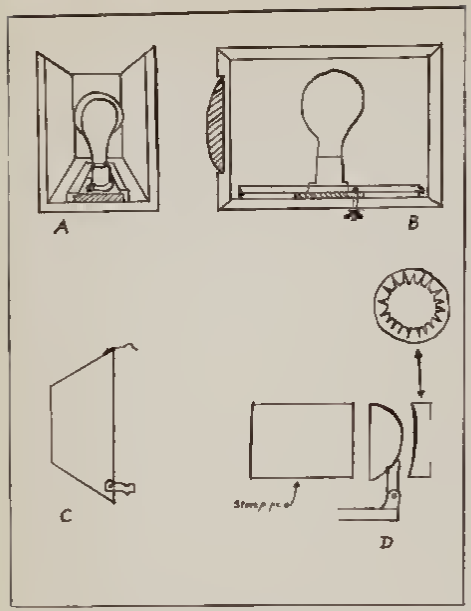
The skillful and judicious use of fades following main titles, to indicate lapses in time, changes in location, etc, adds much to the "production value" of a motion picture

It is claimed that several of the Hollywood laboratories devoted to 35mm film have adopted this new chemical for the making of after fades It will possibly find favor with amateurs who are not always certain that they want to make fades when they are shooting their picture, but are desirous of inserting them after the picture is made This is the method used today by the professional laboratories in Hollywood The fades, while not made chemically are made in the printer which of course is possible with negative and positive The first prints turned out for the cutter do not have these effects, they are determined after the picture is cut

It is well to always stir a chemical such as this fade before using, it is only natural that some of the heavier elements will be inclined to drop to the bottom of the container and, of course your film would not receive the full effect of the dipping

You can tell when your chemical is not properly mixed Your print will show a strong reddish cast

It is well not to make fades too long Remember you must make a fade in and a fade out to make the scene smooth so a foot fade out and a foot fade in is in most instances plenty This means five seconds on the screen before the complete fade in and fade out is completed



A and B end and sectional views of partly-finished wooden spotlight C, snout; D, concentrator for desk-lamp.

Making Your Own Spotlight

by
J Hommel

HOME MOVIE interior scenes frequently call for spotlight effects The equipment people have been very nice indeed about making inexpensive general lighting units for home filming but so for they've been less considerate in the matter of turning out spotlights Only one home-movie spotlight has appeared on the market so far and aside from this, the cinefilmer's only alternative is to buy a professional "baby spot," and these—unless one is lucky enough to pick up a used one at a theatre-supply shop—come rather higher than the average amateur cares to pay

But it is quite possible to build your own spotlight, or even to improvise crude makeshifts that will to a certain extent give spotlight effects.

The simplest sort of a makeshift is made by putting a Photoflood into an ordinary reading-lamp, and fitting a tubular hood over the lamp's reflector If the tube is long enough, it will cut off the spreading rays at the edge of the beam, and give a round spot of light which is good enough for some purposes The simplest thing to use for this tube is a length of ordinary stove-pipe Take a short strip of pipe, slit one end of it with shears, and fold them down so that they fit over the lamp's reflector Then slip a longer piece of the stove-pipe over this—and there you are! If you want to be really ritzy, you can fit a third section of pipe (just a shade larger) over the tube, so that by moving it in or out you can to some extent control the size of the spot

Another gadget is the "snout" or concentrator, which has several times been described in this magazine It is used over any ordinary photographic light, and gives fair spot effects Go to any shop where they make sheet-metal spinnings, and have a cone made, the big end should be approximately the same diameter as the front of the reflector of your regular lamp The small end should be about six inches across Then rivet three little spring clips at intervals around the big end, and you'll have a "snout" that fits your floodlight

These makeshifts will work well enough, but they waste a lot of light You see, in a real spotlight, to make the beam smaller, you move your globe closer to the focus of the lens, rather than simply cutting off the edge of the beam so you get a stronger, concentrated light as you pull the beam down With either the snout or the stove-pipe gadget, you simply cut off the edge of the beam and so to speak, throw the light away Whether you cast a big spot, or a tiny one, the intensity of light is the same Pointing a photocell meter at such a lamp, your reading would be the same whether you had a large spot or a small one, but with a true spotlight, you'd get a low reading—say around 200—when the beam was flooded out, and kick the needle clear off the dial when the beam was spotted down

It is fairly easy to build a real spotlight, too The heart of the lamp is a plano-convex condensing lens, which can be bought at any photo-supply store for a few dollars The larger the diameter of the lens, the more light you'll collect from your light-globe, incidentally, but its focal length will probably be longer, too, so your lamp will have to be bigger

If you are a fair carpenter, wooden construction will do Build your box out of three-fourth inch plywood, and make it large enough to allow reasonably ample air-space around the globe, and long enough so that the globe will be in focus at the rear end of its travel The globe itself can be mounted in an ordinary ten-cent-store socket (porcelain will probably stand the heat better than Bakelite) This socket should be screwed to a square block of wood thick enough so that the center of the lamp-globe will be even with the center of the lens The block should project a little on each side of the socket-base Two strips of L-shaped molding are mounted upside-down along the bottom of the box, and serve as guides for the lamp; the projecting edges of the base-block fit under these rails

There are two ways of controlling the focus of the lamp The simplest is to cut a small slit in the bottom, between the rails and running the length of the lamp, a bolt passes through this from a hole in the wooden lamp-

Continued on Page 544

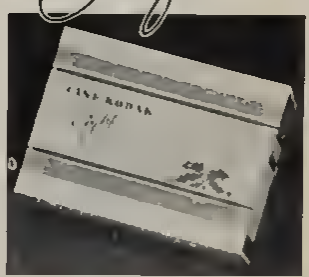
Christmas for keeps
when you give Ciné-Kodak *Eight*

NO one knows better than you how thrilling home movies really are. So what better present could you make to those you want to please the most than Ciné-Kodak Eight?

Think of the fun they'll have in seeing their own movies clear and brilliant on the screen. Christmas for keeps—that's what they get when some one gives Ciné-Kodak Eight. Christmas and a thousand-and-one other lovely, memorable days they'll want to save.

It's a movie camera of remarkable economy, giving four times as many movies per foot of film. A roll of "Eight" film runs as long on the screen as 100 feet of any amateur standard home movie film. 20 to 30 movie scenes—each as long as the average scene in the news reels—on a roll of film costing $2.25, *finished, ready to show.* This means movies at ten cents a shot. The "Eight" costs only $34.50. See it, and samples of the movies it makes, at your dealer's.

What to give that's new, fresh, and will win everybody's heart? The "Eight" settles it. Eastman Kodak Company, Rochester, N. Y.



...ready for the holidays in its own Christmas wrapping.

GIVE A KODAK

WHEELS OF INDUSTRY

Reflex Box Camera

● Burleigh Brooks announces the K W Reflex Box Camera which takes 2¼ by 3¼ inch roll film and has self-erecting hood of the usual reflex type, containing focusing screen or ground glass, which shows an image of the subject in exact size and in sharp focus

The all-metal slit shutter is adjustable for speeds of 1/25, 1/50 and 1/100 second and for brief and long time exposures The scales for stops, distances and shutter speeds, are conveniently arranged to insure instantaneous manipulation Its dimensions are 4⅞ by 3⅛ by 4¼ inches and it weighs approximately two pounds

Weston Film Chart

● Weston Electrical Instrument Corporation has issued an interesting and valuable chart for both the still and cine photographer It is called Weston Film Speeds and can be secured from practically every dealer for the asking

This chart gives the Weston reading for meters Nos 617, 627 and 650 of all popular types of film It gives a very clear and comprehensive outline on the use of Kodachrome

One other chart of great value to the cine amateur is the "Shutter Time for Motion Picture Cameras" This exposure time is given based on 16 pictures per second

New 8mm Camera

● Hans Unfried of Buffalo N Y, announces that he is importing the German-made Cine Nizo 8mm camera for marketing in the United States

This camera is furnished with a 12 5mm focal length lens with a speed rating of f/2 8 It will run 15 feet of film with one winding It is adjustable for speeds from 8 to 64 frames per second In Germany lenses of 20mm, 35mm and 75mm focal lengths are available It has what is termed a three-in-one finder which serves as direct, indirect and angle viewfinder

Cine Humidor

● Wm J Grace, of Dallas, Texas, announces an addition to his line of useful cine accessories His latest contribution is the Strongbox Humidor It is a simple box without the regular catches and locks and hinges It is built very substantial and comes in two sizes one for 6 reels of 200 feet 8mm and one for 6 reels of 400 feet 16mm All six reels are stacked over a center rod, the top of which is threaded to receive the castel nut which holds the top firmly on the case A piece of 3 16 by 1½ inch felt in one corner is moistened to keep the films properly humidified

Camera Accessory

● The photography of wild life usually calls for extreme caution and care on the part of the cameraman In most cases, it is impossible for him to approach birds and animals sufficiently to secure a reasonably large image on his film A device which permits camera control from a distance has long been recognized as a definite aid to the nature photographer E Leitz, Inc announces a special remote control device for the Leica camera

The Leica remote control device consists essentially of a pully arrangement by means of which two cords release the shutter, and rewind the film and shutter for the next exposure The length of the cords can be increased to any length required, and permit the cameraman complete and easy control over the action of the camera mechanism

Tank Agitator

● E LEITZ, INC, announce a new, domestic agitator The movement imparted to the developing tank is an oscillating one instead of the usual constant one-direction movement The developing tank is merely placed upon the circular platform or table and the switch turned on A husky motor propels the platform to and fro

Two models of the Leitz agitator are available, one for A C (alternating current), the other for D C (direct current) The two models are identical other than the current for which they are intended

An accessory to be used in connection with the agitators is an automatic time-switch which permits time intervals of up to 30 minutes to be obtained without any attention from the owner At the end of the predetermined time interval the switch shuts off the current automatically

Special Leica Models

● The Leica camera with its 30 to 36 exposures per loading may not entirely suit some photographers Some want to make but one exposure at a loading, while others have need to make 100 or more at a loading In order to accommodate these extremes E Leitz, Inc, 60 East 10th St, New York City, supplied the "Oligo" Single Exposure Leica and the Model FF Leica

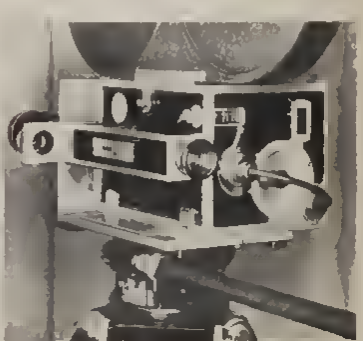
The Oligo Model uses tiny metal 'plate holders," which will accommodate sections of 35mm film A ground glass focusing screen and special Ibsor shutter are supplied All standard Leica lenses may be used with this model

In the Model FF, the owner has sufficient film capacity to make 250 exposures without reloading the camera Basically the Model FF is the same as the Model F, excepting for the enlarged ends which accommodate film magazines holding up to 30 feet of film Aerial, natural color, copy and record photographers often have a need for such a camera

De Vry Sound Camera

● There is always interest among photographers in a new camera The DeVry

Continued on Page 547



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Gifts

such as these are more than mere tokens of remembrance. They reflect magnificently the gracious and wholehearted generosity of the giver . . . and, being VICTORS, they bear the distinction of being the Finest that money can buy.

VICTOR CAMERAS are available in three Models. Model [illegible] (illustrated above) is only $72.50.

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Interiors Without Lights

Continued from Page 533

tions This softer light can usually be reflected very satisfactorily, too, while if necessary, a beam of direct sunlight from another window can be bent around with reflectors, until it is useful. Once one gets the hang of using reflectors, it becomes quite possible to juggle a beam of light from one reflector to another until it is where we need it

These reflector lightings can be made very successfully on porches, too A light-colored porch floor is in itself something of a reflector, by the way. Shooting into a porch presents little difficulty, but shooting through, or out from a porch one should remember that the direct and reflected front-light on the subject should be rather strong, so as to minimize the difference in exposure between the subject on the shaded porch and the more brilliantly illuminated background.

And how are reflectors made? Well, the simplest reflector is simply a piece of white cloth, like a sheet, held up in the proper place to throw back some light into the shadowed side of the subject A very simple support for such a reflector can be made by taking two strips of light wood, and fastening them together to form a T In use, you simply fasten the sheet onto the cross-bar of the T with pins or thumb-tacks, and then attach the upright of the T to the back of a chair with a strong rubber band As you usually want your reflector at an angle, you can put a weight on the bottom of the sheet, and adjust the angle by moving the chair to and fro and by sliding the supporting bar higher or lower on the back of the chair This type of reflector is useful mainly when the direct light is quite strong for it reflects quite diffusely Projection-screens can also be pressed into service as "soft" reflectors

But more often, a surface that has greater reflecting power will be needed. and it is best to use a reflector more like those used professionally This type consists of a piece of compo-board or plywood coated with tinfoil You can make them almost any size that is convenient, it is a good idea to make them in two sections, hinged together like a book, so that when not in use the reflector can be folded into smaller compass, protecting the reflecting surfaces A hinged wooden leg at the back will support the reflector at any desired angle If the reflectors are going to be used indoors a second leg can be hinged at the bottom, and fitted with notches into which the upper leg can fit, thereby avoiding the trouble encountered on slippery floors

Where you want a very "hard" reflected light, you can use a sheet of tin or a mirror but the beam from such a reflecting surface is so intense that it is not very pleasing photographically, and hard to control

On the other hand, when you want to soften the direct light through a window, it can often be done by covering all or part of the window with thin cheese-cloth

The color of the room in which you are working will have a very important bearing on the sort of picture you will get If the walls and hangings are dark, they will naturally reflect very little light into the lens—not enough to make any impression upon the film—and about all you will get is whatever is in the path of the direct light through the window, or in the beams of the reflectors On the other hand, if the walls are light in color, they will reflect more light into your lens, and consequently show up better in the picture

Following the same idea to its logical conclusion, we can make a very few lights go a long way if we supplement them with daylight—and still farther if we also use reflectors For instance, using sunlight and a reflector to light our subject, we would probably lose most of the background but if we use a single lamp, we can add enough general illumination to reveal the background fairly well, too Used this way, in conjunction with the natural illumination of a room one lamp—a single, inexpensive Photoflood unit or even a reading-lamp with a Photoflood globe—will enable us to film a surprising range of indoor scenes As the strength of the illumination varies as the inverse square of the distance between the lamp and what it illumines, we can balance our natural and artificial lighting simply by moving the lamp in or out from the subject I have made many excellent interiors this way, using a single lamp and sunlight even at times when I had several lamps available, the effect on the screen was more completely natural than if I had tried to avoid the sunlight and use artificial lighting entirely Some of my finest Kodachrome interiors, too, were made by taking advantage of a beam of sunlight in a light-walled room, and merely filling in with a single electric light

Many amateurs are inclined to overlook the fact that if they can reflect sunlight, they can also reflect the rays of a photographic lamp Used intelligently, good reflectors can make a single lamp virtually equivalent to two un-

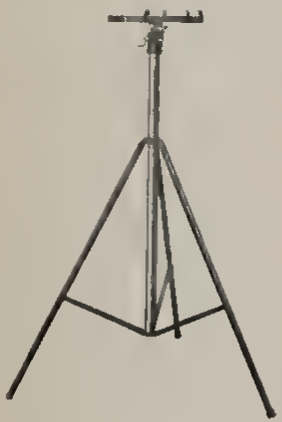
New! The Da-Lite Number 2 UNIPOD

. . . the very latest thing in a compact, light-weight camera support. Developed for those who want the convenience of the No. 1 UNIPOD (see below) in a shorter model. The No. 2 rests against the body and is supported by a strap around the neck. It is made of two aluminum tubes, that telescope. When collapsed, it is only 11" long. It extends to 17½". A half turn of the knob on the upper end of the inner tube locks the two members securely at any height. A threaded extension on this inner member receives the camera and holds it firmly. The No. 2 UNIPOD is a *different* Christmas gift that any movie maker will be delighted to receive. See it at your dealer's today or write for full details!

SOMETHING DIFFERENT

In Christmas Gifts for Your Movie-Maker Friends!

DA-LITE MOVIE ACCESSORIES



The DA-LITE Projector Stand

makes home movie shows run as smoothly as professional presentations. It permits placing the audience in the best location . . . directly in front of the screen and elevating the projector above their heads. It is equipped with either a tilting silent projector platform (with side clamps to grip the projector) or a non-tilting table for sound and slide projectors. Sturdy and vibrationless. Your dealer will gladly demonstrate.

DA-LITE No. 1 UNIPOD

Keeps the camera steady, prevents wobbly pictures. Extends to any height up to 60", collapses to snappy appearing walking cane. Sold by leading dealers everywhere. Or write us for full details and name of nearest distributor!

DA-LITE Portable Screens

For the friend who is trying to get along with a makeshift screen, there is no more welcome gift than a Da-Lite Beaded Screen. Movies are sparkling clear, and have greater depth and brilliance. There are models for every need. Illustrated is the famous Challenger which has its own tripod and can be set up anywhere. Ask to see the Da-Lite line now, before the last-minute Christmas rush. Prices range from $3.00 up

DA-LITE SCREEN CO., Inc.

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its two equal to four and so on. Anyone whose lighting equipment is limited should certainly try using reflectors.

Finally, by investing a few extra dimes in extension-cords it is possible to carry your lights outdoors and to use them for what the professional terms "fill-in" lighting. In other words, when working on shady porches or in other shaded places near a house, you can use your lights like reflectors—to fill in what would otherwise be heavy shadows.

A while ago, for instance, I was making some 16mm films in a friend's house. There was a chance for a beautiful shot of a man and a girl on a big porch, seating them toward the edge of the porch. I could get a beautiful back-light from the rays of the afternoon sun. But the exposure-problem was perplexing: if I opened up enough to get a good exposure on the shadowed faces, the brilliantly lit background would be burned up, while if I exposed for the background, I'd lose the more important faces. A reflector would solve the problem nicely—but I had no reflector. So I strung up my lamp-cords together, and brought a 500-Watt Kodalite out onto the porch. Placed beside the camera, it gave me a nice even lighting on the faces. In this case, a flat front-light would be the most natural effect), and allowed me to balance the exposure between the faces, the strong back-light, and the brilliant background. On the screen, the effect is remarkably natural, without any hint of artificial lighting. And every cinematographer who sees the film asks, "How did you get that shot without burning up the highlights?" The answer is simply—"Filling in the shadows!"

Making Your Own Spotlight

Continued from Page 538

base, and is fitted with a wing-nut and washer by which the lamp can be locked at any position. This is easy to make, but unfortunately, the wing-nut often gets quite warm when the lamp is burned for any length of time, which makes things a bit inconvenient. The other method is to fit a wooden shaft—a strip of doweling will do excellently—to the lamp-base, carrying it out through the back of the lamp. This way, you can slide your lamp in and out of focus, flooding it or spotting it, without risking burned fingers.

The back of the lamphouse should be hinged to facilitate changing lamps.

It is a good idea to drill several holes along the lower edge of each of the two sides, to allow for ventilation, and to hinge a narrow cover at the top, which can be opened slightly when the lamp is burning again for ventilation. Too much heat materially shortens the life of a Photoflood. If your handiwork is particularly good, you can make this top ventilator a long, narrow box-like affair, fixed in place, and with ventilating holes in its sides.

The lens, of course, is mounted in front of the lamphouse. The simplest way to do this is to cut a hole slightly smaller than the diameter of the lens in the frontboard, then to ream out the hole to lens-diameter and about three-eighth inch depth. The lens is fitted into this with the flat side toward the lamp (that is, inward), and held in place either by a loop of heavy spring-wire by the little metal fasteners used to hold window-glass, or by puttying with plastic wood. Of course, if you're an amateur woodworker and have a lathe, you can turn out a flanged hard-wood lens-mount de luxe, which can be fitted in place with screws.

To support the spotlight, you will need a stand which can be raised or lowered, and a mounting which will let you "pan" and tilt the lamp to any angle. A cheap music-stand will do excellently for the stand, while the lamp-bracket can easily be made out of a U-shaped metal strip. Have a threaded hole cut in the bottom of the U, fitting into the top section of the stand, which is also threaded. The tilting movement comes

With its increased sensitivity and wider range of usefulness, the new WESTON makes an ideal Christmas gift for the picture taker. On sale at all leading dealers in an attractive gift box. . . . Weston Electrical Instrument Corporation, 598 Frelinghuysen Avenue, Newark, New Jersey.

WESTON *Exposure Meters*

[illegible] such a good carpenter this simple general construction can be carried out in metal, either by yourself or by the neighborhood tinsmith. The lamp-rails, lamp-supporting block, and so on can easily be made up of simple angle sections. Don't however make the mistake of using too light a weight of metal for your lamp-house. It will be subjected not only to quite a bit of heat, but to a lot of unpremeditated hard knocks, so if you want your lamp to last, use a substantial grade of tinners galvanized iron. The simplest construction for the lens-carrying front board of your spotlamp would naturally be a casting, which could be held in place with screws, but this is likely to run into more expense than necessary. A less costly construction consists of two metal plates each with a round hole a shade smaller than the lens. The lens is mounted between these two plates, which can be spaced apart with a layer or two of the asbestos sheeting used for insulating furnaces and bolted together. The rear plate can be soldered or welded to the lamp-box, while the front plate is held only by the bolts.

It is rather important when using metal construction to have wooden handles on the operating controls, for the direct metal-to-metal contact transmits heat all too freely.

The inside of your spotlight can be painted with flat white or aluminum paint, though this probably does not greatly increase the power of the lamp, most of the light will be collected from the front side of the globe only. If you plan to use clear, projection-type globes there is, however, a definite advantage in fitting a small, spherical mirror (likewise from a photo or theatre-supply store) behind the globe, to reflect the rearward rays back to where they can be picked up by the lens. A coat of black paint (or, in a wooden lamp, stain) on the outside of the spotlight always makes for better appearance.

By using different kinds of lamp-globes, you can get different effects with your spotlight. If you use a 500-watt projection-type globe, you will get a "harder," more intense light, with more clear-cut spot-effects, though when spotted down you will also get an image of the filament wires. If you use a regular Photoflood, you will get a much softer effect, with a not quite so definite spot, when spotted down a bit beyond the point of focus, this type of light is very effective for giving sparkle to the eyes in a close-up. Lastly, if you use one of the opal-glass type Photofloods, you will get still softer effects.

Wheels of Industry

Continued from Page 540

35mm Sound Recording Camera is presented herewith, showing the operating side of this new DeVry product Beginning at the top, note the adjustable belt idler at the rear of the magazine for positive take-up tension Film footage counter at the rear of the camera The focusing lens eye piece is just at the left and a little below the footage counter Recording lamp socket is at the right of the eye piece The Tachometer dial slit may be seen just above the motor governor knob The Precision focusing and view finding is a notable feature

Microscopic Movies

● Through the cooperation of the Bausch & Lomb Optical Co and the Eastman Kodak Company, a new apparatus has been designed for making microscopic movies The use of the 16mm camera has previously been somewhat limited in the scientific field The cost of fitting up a movie camera to make microscopic movies ran well over the thousand dollar mark and was limited more or less to 35mm cameras and film

Now the Cine-Kodak Special may be used with a special observation eyepiece, developed by Bausch & Lomb, which acts as a beam splitter The beam splitter eyepiece is fitted to the front of the camera in place of the regular camera lens In the beam splitter is a 45 degree prism, silvered but unbacked, which causes part of the light to be reflected to the film and part to be transmitted through the eyepiece so that the operator can observe the action and the field while the picture is being made

The Observation Eyepiece sets into a flange placed on the microscope eyepiece so that a light tight seal is made between the two elements This accessory can be fitted to any microscope

Not only can films be easily made in black and white, but with the new Kodachrome film pictures in natural color can be obtained The use of color film with polarized light produces some extraordinary results The growth of crystals of organic compounds in regular and slow motion filmed with polarized light, gives a mixture and change of color in the crystals of extraordinary beauty

"Senior Solarspot"

● Since its introduction several months ago Mole-Richardson's 2,000-Watt Junior Solarspot has made noteworthy strides in displacing the 18-inch reflecting spotlight as the industry's standard lighting unit This month Mole-Richardson has announced a larger companion-unit of the same type, the 5 KW "Senior Solarspot," designed to take in the new line the place occupied in older

series by the 5 KW 24-inch reflecting Sunspot.

The beam of the Senior Solarspot may be concentrated to a spot-beam of 10 degrees or less, and flooded out to a spread of over 44 degrees. At the widest spread, the beam is said to retain sufficient intensity to be of photographic value.

The new lamp is a more compact unit than other types of the same wattage. It is built for convenient operation, with the tilt-locking handle carried through the housing to the rear, and all other operating controls conveniently grouped.

Victor Wipe-off

● Broadening the scope of his Du-Morr Radial Wipe for use beyond the Cine Kodak special, J. D. Cochrane, Jr., announces this device now available for the Victor Model No. 5. This device produces 12 types of wipes with each shape of fan. It weighs only one pound and is said to be easy to operate.

DuLite Unipod

● The DuLite Screen Company of Chicago announces the No. 2 Unipod for holding substandard cameras. This accessory is made of two aluminum tubular members which telescope. The tip of the inner tube is provided with a threaded element to receive the camera, this is protected by an adjustable bakelite knob. By giving the knob a half turn, the Unipod is instantly extended to any length desired up to 17½ inches. It is supported by means of a strap around the neck. When the Unipod is collapsed, it is eleven inches long. It weighs 10 ounces.

Continuity for a Christmas Comedy

Continued from Page 534

Scene 30. CLOSE-UP of Buddy, with his face close to window-glass.

Scene 31. LONG-SHOT through store-window, showing Christmas display of toys.

Scene 32. Medium LONG-SHOT of entrance to a big department-store. Buddy and father go in.

Scene 33. Montage of SHOTS inside toy-department, CLOSE-UPS of various toys—especially electric trains.

Scene 34. Medium LONG-SHOT of Santa Claus, sitting down. A little girl is on his lap. She leaves, and Buddy comes up.

Scene 35. CLOSE-UP of Buddy, talking earnestly.

TITLE "— an' I want some skates, a sled an' an electric train—"

Scene 36. CLOSE-UP of Santa, nodding approval. FADE OUT.

Scene 37. FADE IN. CLOSE-UP of calendar (stop motion). The leaves melt away until DECEMBER 25 is reached. FADE OUT.

Scene 38. FADE IN. LONG-SHOT in living-room, toward door. The door opens, and Father, Mother and Buddy enter.

Scene 39. CLOSE-UP of Christmas-tree, with presents grouped around it. Very prominent in foreground is a big package that looks as though it might contain a train.

Scene 40. Same as Scene 38. All advance toward camera—Buddy running forward.

Scene 41. CLOSE-UPS *ad lib* of the family opening their presents. Father is seen to get a fine new pipe and some neck-ties, and Buddy opens the big package, revealing a fine electric train.

Scene 42. CLOSE SHOT of Buddy, seated on floor, starting to set up his train and tracks.

Scene 43. MEDIUM-SHOT of some. Father drops down beside Buddy, and starts to help him. They commence to argue. Father apparently wants the tracks one way, and Buddy another. LAP-DISSOLVE (or fade out and in) TO

Scene 44. CLOSE-UP of electric train running around the track, which is arranged the way Father wanted it.

Scene 45. MEDIUM-SHOT of some. Father is playing with the train, having a lot of fun. Buddy is nowhere to be seen.

Scene 46. LONG-SHOT of some. Part of Christmas-tree in foreground, Father and the train in middle distance. Away off in the background, Buddy is seated in a chair.

Scene 47. CLOSE-UP of Buddy in the chair. He has Father's pipe, at which he is looking very disgustedly. Finally he puts the pipe down, and gets up resolutely.

Scene 48. MEDIUM-SHOT Buddy ap-

proaches a writing-desk, sits down, draws out a piece of paper and starts to write

Scene 49 Insert of letter Buddy is writing It reads

Dere Santy

I got the lectrick trane all write
But sAy Santy, you gotta be more careful Daddy thinks its hiS
Contchu do sompn about it sAnty?
If you dont I aint gonna be good no more

Buddy

Scene 50 CLOSE-UP of Buddy He looks off to one side

Scene 51 LONG-SHOT past Buddy to where Father is playing with train

Scene 52 MEDIUM-SHOT of Buddy He turns back, and resolutely signs the note

Scene 53 CLOSE-UP of the train coming straight into the camera

THE END

Additional parts can be written into this, of course for neighbor children, or other members of the family The street-car scenes are best made on a Sunday, when there is less traffic The shot of Buddy in the car can be eliminated if it doesn't seem practical, though in most street-cars it can be made easily on a sunny day It would be advisable, incidentally, to use the shaded side of the street for a background in this shot, to equalize the exposure The shots of Buddy, and of Buddy and Father on the downtown streets can be stolen' by putting the camera inside a car and shooting through the window The close-ups of the children looking into the store-window can be made at any time, using any old window-pane for the gloss, and shooting so as to miss the frame

If, as is probable, you can't find enough light in a toy-department to make the Montage (Scene 33) in motion pictures, make it up by copying (in a title-board) still shots made with a Leica or photos from toy catalogues, etc The scenes of Santa Claus can be made at home, with Father doubling for Santa, and a plain white sheet serving as the background, for Santa often uses a tent in toy stores

Filming Snow Scenes With Filters

Continued from Page 532

beautiful 'normal' or 'natural' effects The secret of securing correct tonal quality in snow is then, in the use of a panchromatic film and a filter

Another considerable aid in good snow results is an exposure meter In the winter-time, the light is not nearly so intense as in summer although the brilliant reflection in the snow may lead one to believe that the light is more intense than it really is Of course the snow reflects sunlight to a surprising degree and must therefore be taken into consideration but just how much to allow is something best left to a reliable exposure meter The photronic cell type of meter is especially recommended, for its infallible readings can be depended upon at all times whereas the extinction type of meter is apt to lead one astray because of the intensity of the reflected light affecting the eyes when making a reading Exposure in snow filming is something not to be lightly tossed aside, for it is a vital and influential matter Probably more footage is wasted yearly because of the lack of reliable exposure than any other single cause Use a meter then for best results

Thus far we have considered only the filming of snow scenes in sunlight How about when it snows? Isn't there a possibility here? Most assuredly there is for the downy flakes falling idly make amazing cinematic patterns on the screen which are well worth recording Naturally a filter is out of the question in such cases because there is not sufficient illumination, as a rule to stand it and secondly there is no purpose in using one Leave the filter off the lens, use a fast film and a speedy lens—you will be surprised as to what you get

One delightful feature of snow photography which has rarely been mentioned is the photography of what is commonly called hoar-frost It occurs only rarely, and then lasts only a short while hence demands the greatest observance and preparedness of the filmer In early spring, when a rain falls instead of snow, the weather may suddenly freeze, causing the rain-water to freeze, thus coating whatever it covers with a gorgeous, silvery layer which sparkles and shines in the sun's rays Trees, bare and stark, in the park or in the country are particularly picturesque, their branches enveloped in an icing which resembles cellophane If such subjects can be caught in the proper light fascinating scenes can be captured before they disappear Icicles, too when hanging from roof-tops, offer interesting pictorial patterns and should not be ignored for a few such odd shots might later fit in splendidly with some other subject matter

Of course winter sports should not be ignored Skating skiing tobogganing and similar activities offer a wealth of material for the serious filmer It is sometimes difficult to tie such action shots in with picturesque backgrounds but the enthusiast can usually manage to combine the two into a most effective

reel Angle shots are particularly powerful, especially when shooting skaters and skiers Low angles as a rule are most forceful and should be secured whenever possible, for they are not as common as one might suppose

Even if no special use can be thought of for such scenes they should be secured, for when they are needed, they are awfully difficult to get Therefore, don't lose any opportunities to get snow and ice scenes If they are pictorial, all the better Snow subjects are exceedingly rare, and because no dependence can be placed upon the weather, it behooves every filmer interested in snow scenes to get them whenever possible

Definitions of Elements in Composition

Continued from Page 536

in a mad whirl The head falls from the body into the waste-paper basket, where most authors' brain-children find peace and rest By cutting in close-up shots of showing only two eyes looking in the direction of the related action we never let the audience know if they are seeing a living person or if it is really a dummy In the last fade-out we see the head with all the straw and sawdust strewn about, when suddenly the eyes close in death as a shower of other unwritten plots comes tumbling down upon the headless author until they have quite obliterated our hero, (if we ever had one) By pasting scare-heads from local newspapers so that they spell the end, you can give a good finish to this nightmare plot

CAST Dummy Figure
Hands
Typewriter
Waste-paper Basket

CLOSE-UP Hands typing out Main Title

CLOSE-UP Hands furiously hitting keys

CLOSE-UP Under-shot of hands in action of typing
(Use glass to shoot through from under side)

DISSOLVE into CLOSE-UP of dummy's eyes

DISSOLVE into CLUSE-UP of dummy's head
(Cut out masking frame for shooting all shots in dummy's brain)

CLOSE-UP (FADE IN) First action scene of wheels moving

DISSOLVE to wheels going in opposite direction.

DISSOLVE into hands hammering with downward motion
(Increase tempo of this action)

CLOSE-UP Eyes looking into direction of action

DISSOLVE into quick shots of people's feet, hands, and any moving object
(Every three or four shots cut back to EYES)

Note Build up tempo with quick shot of the harassed brain, until the structural forms melt into one continuous action In this shot it would be good to let smoke cover the frame and suddenly break into flames

CUT BACK to eyes They should have a terror-stricken look

CLOSE-UP of head in full frame; hold shot as head starts rocking until it falls from body

CLOSE-UP of waste-paper basket, head falls into basket

CLOSE-UP of eyes closing, basket is littered with saw-dust, manuscript paper falls over head and eyes, hiding completely the scene

FADE OUT and bring in TITLE,

"THE END"

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